Ontario

Summary of the Status of Commercially Harvested Fish Stocks in Lake Huron in 2006

(including recommended quota adjustments for 2007)

Upper Great Lakes Management Unit
Lake Huron
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Richesses naturelles

Summary of the Status of Commercially Harvested Fish Stocks in Lake Huron in 2006

(including recommended quota adjustments for 2007)

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Upper Great Lakes Management Unit,
Lake Huron Office

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Introduction

Assessment of the commercially targeted fish stocks in Lake Huron is one of the core programs of the Upper Great Lakes Management Unit (UGLMU), Lake Huron office. The commercial fishery exists throughout most of the waters of Lake Huron and involves both small and large fisheries targeting species such as lake whitefish, walleye, and yellow perch. Both Ontario licenced commercial fisheries and Aboriginal commercial and subsistence fisheries exist in Lake Huron, adding to the complexity of the fishery.

Over the past several years, new methods of assessing commercially harvested fish stocks in Lake Huron have been implemented. These methods continue to be developed and refined on an on-going basis. This Status of Stocks Report has been developed as part of the process of reporting status of commercial stocks in Lake Huron. Its purpose is two fold: first it is intended to briefly summarize the methodologies and analyses that have taken place on these stocks and second, it will include preliminary recommendations for any changes to existing commercial fishery quotas. It should be noted that these ***recommendations are preliminary and may not reflect the final adjustments implemented by lake management staff***.

The complete analysis and summary of commercial fishery data is based upon three major assessment programs run by the UGLMU; the Commercial Harvest Reporting program, the Commercial Catch Sampling program and the Offshore Index Assessment program. Each of these is generally reported independently on an annual basis. In addition, external data is included in some of the analyses described in this report. These include data from the Saugeen Ojibway Assessment program and the Anishinabek/Ontario Fisheries Resource Centre. Results from joint assessments with U.S. partners may also be included in certain sections. Any external data used in this report is referenced in the appropriate section.

The Upper Great Lakes Management Unit employs a system whereby quotas are adjusted based upon a set of guidelines developed by the Lake Huron Commercial Fishery Liaison Committee (Table 1). This process requires that the "status" of the individual stocks be classified (up, down, stable) based upon the best available data. A more detailed description of the process is available in Mohr et al. 1997. The quality and quantity of data that is used for stock assessment has changed through time. Therefore it is important to document the evolution of the stock determination process. This is described in the methods section in this report.

Methods

The stock status process employed by the UGLMU must be flexible and adaptive in order to integrate information from a number of different and diverse data sources. Data incorporated into the evaluation process include reported harvest and effort data from the commercial fishing industry, onboard catch sampling, and independent assessment netting. Fisheries data from other agencies or partners around the lake are also considered when and where it is available.

The metrics used to assess the fish stocks for each species in each Quota Management Area (QMA) are largely determined by the type and amount of data available (Mohr et al. 1997). At a minimum, trends in reported harvest, catch-per-unit-effort (CPUE), and percent quota achieved are considered as indicators of stock status. In some QMAs with small fisheries, or species that are infrequently targeted, these may be the only metrics available for stock evaluation.

Table 1. Guidelines used by UGLMU for commercial quota adjustments on Lake Huron

Guideline	Description
I	If stocks are stable and quotas are achieved [1], quotas will remain unchanged.
II	If stocks are down and quotas are achieved [1], quotas will be reduced by 10%.
III	If stocks are up and quotas are achieved[1], quotas will be increased by 10%.
IV	If stocks are stable and quotas are not achieved [2], quotas will remain unchanged.
V	If stocks are up and quotas are not achieved [2], quotas may be increased you 10%, providing stocks have become fully restored or rehabilitated.
VI	If stocks are down and quotas are not achieved [2], quotas will be decreased by 10%.
VII	Where biological data is inadequate or unavailable for any various reasons, then quotas will generally be held at current levels. If quotas under these circumstances are not achieved [2], quotas may be reduced by 10%.
VIII	If stocks are stable or up, quotas are achieved [1], and there was a 20% quota increase in the previous year, the entire previous year's increase will become part of base quota.

[1] "achieved" means that 75% or greater of quota harvested in previous year.
[2] "not achieved" means less than 75% of quota harvested in previous year.
Note: Exceptional changes in stock abundance may result in 20% change to quota, of which 10% change remains in base quota the following year.

In addition to these core metrics, biological data are normally available for the most frequently harvested species through the UGLMU's onboard catch sampling program. The biological data from this program provides information on the size and age composition of the catch, as well as information about sex and maturity, lamprey wounding, and species composition. Collectively, this information can be used to gain insights into the dynamics of the populations (e.g. identify strong and weak year classes, changes in growth or maturity), allows for estimation of population abundance and biomass and helps document changes in the populations that may have ramifications for the commercial fishery or the lake ecosystem as whole.

On board catch sampling data is also used to monitor the age composition of the catch, including the mean age and number of age classes. Generally, populations with more age classes are more resilient than those with only a few exceptionally strong cohorts. The importance of maintaining a broad age distribution in exploited fish stocks has become increasingly apparent in recent years (Berkeley et al. 2004; Francis et al. 2007). When several years worth of catch sampling data are summarized in catch-at-age tables (e.g. see Appendix A), the age structure of the population through time becomes immediately apparent. Catch curve analysis (Ricker 1975) is also employed to estimate total annual mortality (A) for each species and QMA from the age composition observed in the catch sampling program.

When commercial catch sampling data is unavailable for a given year, the age composition from recent years within the same QMA may be used to infer population structure for the current year. This is especially true if the age composition in adjacent QMAs have remained relatively unchanged over the same time period. This approach is generally only applied in northern Georgian Bay where the fisheries are relatively small and remote, which makes sampling difficult. The risk associated with this approach is minimized in this situation by the scale of the fishery (very small) and the population structure that dominates when samples have been collected (normally there are ten or more age classes in the catch from these QMAs).

Where sufficient data exists, catch-at-age models, both cohort analysis (Pope 1972) and statistical catch-at-age analysis (SCAA) (Ebener et al. 2005), are used to provide additional insights into the status of specific species and populations around the lake. Due to the data intensive nature of these models, they are generally only applied to the largest fisheries. Cohort and SCAA models provide estimates of total mortality, fishing mortality by gear, biomass by age through time, as well as a number of other population parameters. Additionally, the output of the SCAA models are subsequently run in a projection model that applies target mortality rates to the 'virtual' population one year into the future to ensure that current exploitation levels are consistent with estimated population parameters. Cohort models are also projected one year ahead using the previous years' mortality rates and pre recruit data where available.

The UGLMU also conducts a fishery independent offshore index assessment program that provides information that cannot be readily obtained though sampling the commercial catch (UGLMU 2007). One of the most important roles of the program is to provide insights into the strength of year classes before they recruit to the commercial fishery. For selected species, a pre-recruit index (PRI) is calculated to express relative year class strength. The mean CPUE of these species in index nets for the two to four years prior to their recruitment to commercial gear are standardized to a base of 10; strong year classes have a PRI that is greater than 10, while weak year classes have a PRI that is less than 10. In addition to the PRI, the offshore index program also provides important information about population dynamics for several stocks and an indication of the overall fish community structure in Lake Huron.

To facilitate the compilation and interpretation of the numerous metrics used in the stock status process, the UGLMU has developed a stock status evaluation protocol (SSEP) for lake whitefish (Table 2). An example of the application of this method can be found in Mohr and Ebener (2007). A SSEP table is completed for lake whitefish in each QMA, and provides a relatively simple, visual way to evaluate the current status of lake whitefish populations. This table is being modified to provide evaluation power to other species as well.

Finally, it is important to note that the amount of data available for analysis is critical in terms of managing risk associated with the commercial fisheries in Lake Huron. In the absence of data of one type or another, the only management option available to the UGLMU is to manage the commercial fishery in a conservative manner. As more (or in some cases, better) data is made available, it increases the ability of the UGLMU to better assess the status of the stock and thereby manage more sustainably.

Table 2. The Upper Great Lakes Management Units stock status evaluation protocol summary table for lake whitefish.

QMA:	← Status of Stock →				
Parameter	- Risk Health/Sustainability +				+ Risk Health/Sustainability -
CPUE Commercial Harvest	Increase over 2 or more consecutive years	No Trend over 2 consecutive years	Decline over 2 consecutive years	Decline over 3 consecutive years	Decline over >3 consecutive years
Predicted Recruitment from Independent Index	3 or more strong year classes predicted	1 or 2 strong year classes predicted	average year classes predicted	1 or 2 weak year classes predicted	3 + weak year classes predicted
Age Structure of Catch	Multi aged with > 12 year classes	Multi aged with > 10 year classes	Multi aged with > 8 year classes	Multi aged with ≤ 8 year classes	Multi aged with ≤ 6 year classes
Mean Age of Catch	Major Positive Change	Minor Positive Change	No Change	Minor Negative Change	Major Negative Change
Size at Age	Major Positive Change	Minor Positive Change	No Change	Minor Negative Change	Major Negative Change
Age Mature : Mean Age	>=0.6	>=0.7	>=0.8	>=0.9	>=1.0
COHORT ANALYSIS					
Total Annual Mortality	<0.45	0.45 to 0.6	0.6 to 0.65	0.65 to 0.70	>0.70
Estimated Exploitable Biomass	Significant increase over 2 consecutive years	No significant change over 2 consecutive years	Significant decrease over 2 consecutive years	Significant decrease over 3 consecutive years	Significant decrease over 5 consecutive years
Ratio of Harvest : Exploitable Biomass Estimate 2006 / 2007	<20%	20% to 30%	30% to 40%	40% to 50%	>50%
	<20%	20% to 30%	30% to 40%	40% to 50%	>50%
SCAA					
Total Annual Mortality	<0.45	0.45 to 0.6	0.6 to 0.65	0.65 to 0.70	>0.70
Estimated Exploitable Biomass	Significant increase over 2 consecutive years	No significant change over 2 consecutive years	Significant decrease over 2 consecutive years	Significant decrease over 3 consecutive years	Significant decrease over 5 consecutive years
SSB	Increase over more than 2 years	Increase over 1-2 years	Unchanged	Decrease over 1-2 years	Decrease over more than 2 years
Ratio of F:M	<0.5	<0.8	< 1.0	>1	>1.5
SPR	>.45	>.35	> .20	<.20	<.15
Predicted 3 yr Old Recruitment	Increase over 3 or more years	Increase over 2 years	No Trend	Decrease over 3 years	Decrease over 5 or more years
Ratio Harvest : Est. Exploitable Biomass 2006	<20%	20% to 30%	30% to 40%	40% to 50%	>50%
	<20%	20% to 30%	30% to 40%	40% to 50%	>50%

Lake Whitefish - Overall

Total harvest of lake whitefish in 2006 was down from the peak that occurred between 1998 and 2002. Most of this drop in harvest is from the main basin fisheries. Harvest in the main basin was approximately 30% lower in both 2005 and 2006 than during the period of peak harvest. Harvest in the North Channel and Georgian Bay has also been trending down from peaks in 1999 and 2002, but actually increased in 2006 and was close to the peak harvests from each of these basins.

The harvest of lake whitefish is down noticeably in a number of QMAs (e.g. 4-1, 4-3 and 4-7). The decline in harvest from these QMAs reflects a combination of their remoteness and reduced fishing in these areas. This is due in part to the increased costs incurred by the commercial fishery, the presence of more easily accessible fishing locations, as well as catchability issues due to increased incidence of filamentous algae in some parts of the lake (pers. comm., Commercial fishermen).

The CPUE for lake whitefish has dropped in the commercial fishery in the main basin from peaks in the late 1990s, but has remained relatively stable recently at approximately 175 kg/km. CPUE in the main basin continues to be almost two times higher than the other basins. In both Georgian Bay and the North Channel, the mean CPUE for lake whitefish reported from the commercial fishery has generally been dropping from peak values in 2000, although CPUE in 2006 was higher than in 2005. The values reported for 2006 are well within the range of values reported over the past 15 years.

The age distribution of lake whitefish in the catch of the commercial fishery appears to be changing through out the lake. Generally, harvested lake whitefish are getting older. In the past, the harvest in most QMAs was composed of four, five and six year old fish, while the harvest today is more frequently comprised of seven to ten year old fish with few younger age classes. The offshore index and commercial catch data suggest that recent year classes are present in the main basin and North Channel. These new year classes are expected to recruit to the commercial fishery over the next couple of years. However, there is very little evidence of these same year classes in Georgian Bay. In fact, recruitment in Georgian Bay has been well below average since 1999, the year of the last strong year class. The apparent absence of recruitment in Georgian Bay lake whitefish populations is a very real concern.

The continued presence of dormant quota in some parts of the lake is considered to be a significant impediment to effective management of lake whitefish in those areas. This issue still needs to be addressed.

Lake Whitefish QMA 4-1

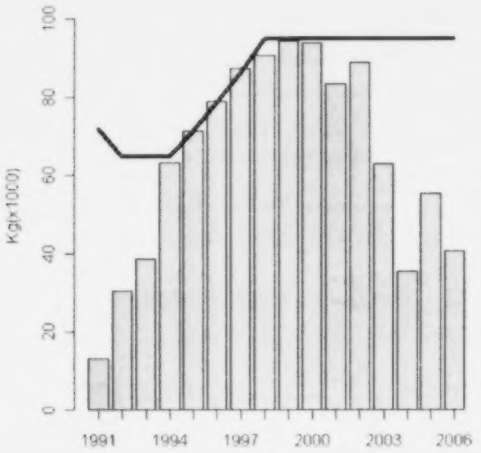

Figure 1. Lake whitefish quota (line) and harvest (bars) from management area 4-1.

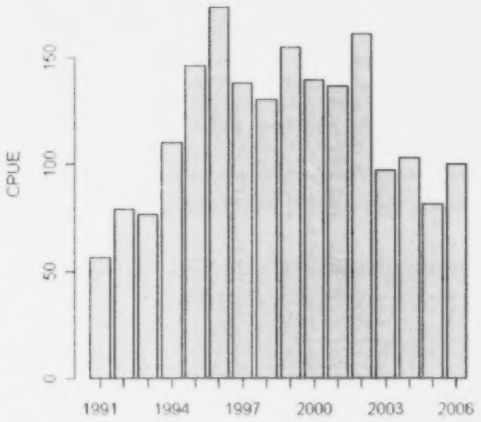

Figure 2. Lake whitefish gill net CPUE (kg/km) for management area 4-1.

Harvest in QMA 4-1 declined in 2006 with only 43% of the quota harvested. However, at the same time, total effort in this QMA declined by close to 40% suggesting the decline in harvest may not directly reflect changing fish abundance. CPUE from the commercial data actually increased slightly in 2006, supporting this observation. All fishers took only a relatively small amount of their available quota.

Minimal sampling (n=2 sampling events) of the commercial whitefish harvest occurred in 2006. Age 8 and 9 fish dominated the catch, with age 6 and 7 fish representing the next largest portions of the catch. There were fewer ages in the catch in 2006 than in most other years. Based on these samples, size at age has not changed greatly over the past several years in this QMA.

Total annual mortality (A) estimated from catch curves was 46.5% in 2006, slightly less than in 2005 and below the suggested upper ceiling for lake whitefish. However, it is based on a very small sample size.

Insufficient data was collected in this QMA to conduct standard population modeling. However, using combined QMAs 4-1, 4-2, and 4-3 data, Statistical Catch at Age Analysis (SCAA) suggests that biomass peaked in 2004 before declining in 2005 and further in 2006.

Summary and Recommendation

Information is limited due to decreasing commercial fishing effort and little recent commercial catch sampling (Table A1). The underachievement of quota for the past 4 years is unusual. Discussions with commercial fishermen suggest that 1) high incidental lake trout catches, 2) changing water quality (filamentous algae clogging nets), and 3) the expense of travel to this relatively remote QMA are the reasons for the declining harvest. Basic data (CPUE) suggests abundance is unchanged and limited catch data suggests that mortality is relatively low.

RECOMMENDATION: No Change

Lake Whitefish QMA 4-2

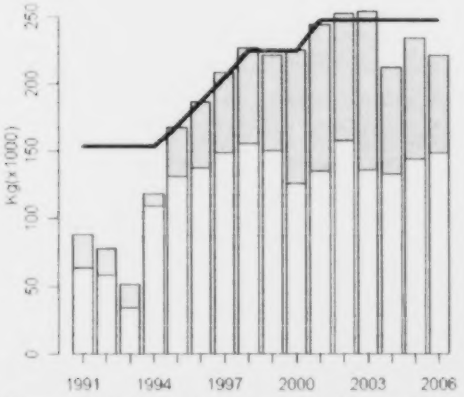

Figure 3. Lake whitefish quota (line) and harvest (bars) from management area 4-2.

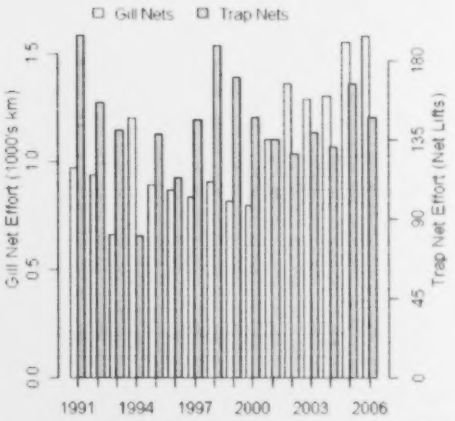

Figure 4. Lake whitefish targeted effort by gear for management area 4-2.

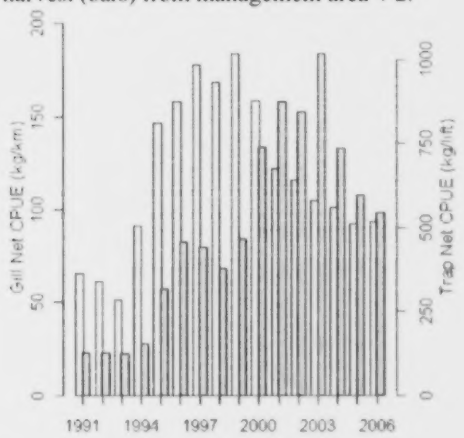

Figure 5. Lake whitefish CPUE by gear for management area 4-2.

Commercial harvest declined slightly (5%) in QMA 4-2 in 2006. Thirty three percent of the harvest was from a trap net fishery, the remainder from gillnets. Gillnet effort was relatively unchanged from 2005 while trap net effort declined by 11%. Subsequently, gillnet CPUE was unchanged from 2005 to 2006, while trap net CPUE declined by 9%. This would suggest little or no change in relative abundance of whitefish in this QMA.

Catch at age tables were generated in this QMA and show a trend towards older fish and fewer age groups in the harvest. In 2006 the mean age of the catch was 8.5 with 8 and 9 year olds being the dominant age classes in gill nets. In trap nets the mean age of the catch was 7.7 with 7, 8, and 9 year

SCAA Model Summary Lake Whitefish QMA 4-2

Data:	1978-2006 Ages:	3-10+
Gear:	Gill nets and trap nets	
Age at First Spawning		5 years
Age at 50% maturity		7 years
Spawning biomass per recruit		
	Base SSBR	0.417 kg
	Current SSBR	0.242 kg
Spawning potential reduction		0.581
Average yield per recruit		0.127 kg
Natural Mortality		0.371
Fishing Mortality (2004-2006)		
	Gill net, average 4+	0.089
	Trap net, average 4+	0.045
Sea lamprey mortality (2004-2006)		
	Average 4+,	0.023
Total mortality (Z)		
	Average 4+ (2004-2006)	0.525
	Average 4+ (2006)	0.550
Biomass (age 5+)		
	Average (2004-2006)	2 138 253 kg
Spawning biomass		
	Average (2004-2006)	1 612 507 kg
Quota (2006)		246 667 kg

olds being dominant. Few fish under age 5 were seen in the trap net catch, suggesting weaker recent year classes. While age of the catch has been increasing, there has been no change in growth of whitefish (size at age) in this QMA in recent years.

Mortality appears to be sustainable in QMA 4-2. Catch curve derived total annual mortality (A) was 54.1% in 2006 slightly lower than the last few years. Statistical Catch at Age Analysis (SCAA), estimated mortality to be 55% for age 4+ fish in 2006.

Despite declining estimates of exploitable biomass, the current quota relative to the estimated spawning stock biomass appears to be sustainable. The ratio of the harvest to the exploitable biomass is well below the 35% threshold. The spawning potential reduction (SPR) is also relatively high suggesting room exists for increased fishing mortality.

Summary and Recommendation

While lake whitefish abundance has been declining over several years (based on CPUE), biomass appears to have peaked in 2004. The population is comprised of older, larger fish each year which partially explains the difference. Mortality and harvest as a proportion of exploitable biomass are still within the presumed acceptable limit. Unfortunately, recruitment appears poor for several years. As the population ages, no new year classes appear to be coming into the fishery.

RECOMMENDATION: **No Change**

Lake Whitefish QMA 4-3

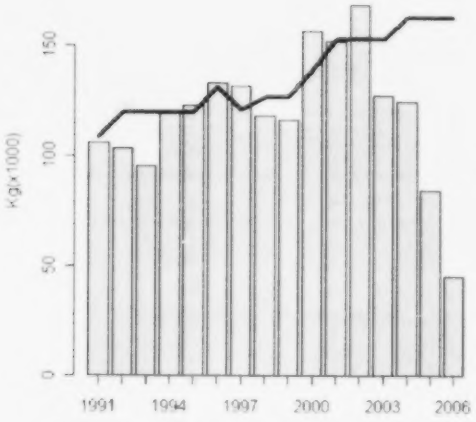

Figure 6. Lake whitefish quota (line) and harvest (bars) from management area 4-3.

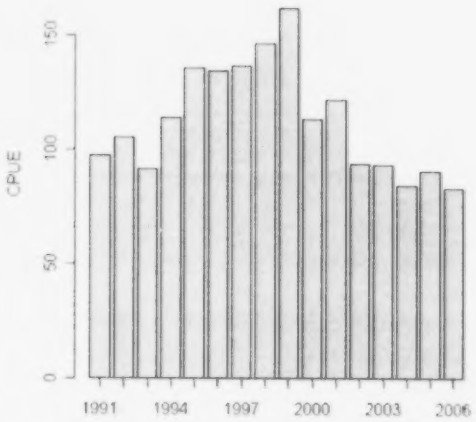

Figure 7. Lake whitefish gill net CPUE (kg/km) for management area 4-3.

Harvest in QMA 4-3 was 45,324 kg in 2006, a decline of 46% from 2005. Only 28% of the quota was harvested in 2006. Gill net fishing effort decreased by 41% in this QMA to only 545 km. At the same time, CPUE was 83.2 kg/km of gill net in 2006, relatively unchanged since 2002. The underachievement of quota and declining effort suggest that factors other than fish abundance are at play in this area.

Unfortunately only one commercial catch was sampled in 2006 in QMA 4-3. Therefore all analysis involving age composition should be considered less than optimal. From the limited data provided, it does appear that mean age continues to be high or be increasing. This is similar to the other QMAs on the southern shore of Manitoulin Island.

Total annual mortality appears to be within the accepted threshold in this QMA. Catch curve mortality was 53.1% while the SCAA estimate was 49% for age 4 and older fish.

Estimates of exploitable and spawning biomass of lake whitefish have been declining in recent years. Exploitable biomass in 2006 was close to the lowest in the time series (1991-2006) based upon cohort analysis. Unfortunately, the population models diverge at this point, with the SCAA model suggesting that biomass is still quite high (10 times higher than cohort estimate). If SCAA model estimates are correct, then spawning biomass is still

SCAA Model Summary Lake Whitefish QMA 4-3

Data:	1978-2006 Ages:	3-10
Gear:	Gill nets only	
Maturity		
	Age at First Spawning	5 years
	Age at 50% maturity	5 years
Spawning Biomass per Recruit		
	Base	0.465 kg
	Current	0.297 kg
Spawning potential reduction		0.638
Average yield per recruit		0.063 kg
Natural Mortality		0.358
Fishing mortality (2004-2006)		
	Gill net, average 4+	0.095
Sea Lamprey Mortality (2004-2006)		
	Average 4+	0.089
Total Mortality		
	Average 4+ (2004-2006)	0.543
	Average 4+ (2006)	0.495
Estimated Biomass (age 5+)		
	Average(2004-2006)	2 159 312 kg
Estimated Spawning biomass (Age5+)		
	Average(2004-2006)	1 504 188 kg
Quota (2006)		132 346 kg

relatively high and the harvest of current quota is sustainable. The spawning potential reduction (SPR) value of 0.638 suggests fishing mortality could be increased.

Changing effort and subsequent harvest in this QMA have created low estimates of mortality in each of the models. This has made interpretation of the model results very difficult.

Summary and Recommendation

Low effort and harvest may be due to non-abundance issues such as fuel and travel costs, lake trout abundance, and gillnet catchability issues (algal growth). This along with few catch sampling opportunities reduces our ability to fully understand this population. If we assume similar trends as those seen in adjacent QMAs, poor recruitment and an aging population will likely mean decreasing abundance in the future, but current harvest levels may be sustainable.

RECOMMENDATION: No Change

Lake Whitefish QMA 4-4

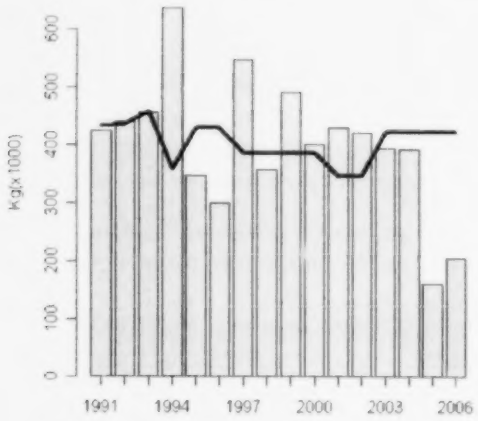

Figure 8. Lake whitefish quota (line) and harvest (bars) from management area 4-4.

Harvest of lake whitefish in QMA 4-4 was 204,862 kg in 2006, an increase of 28% from 2005. Targeted fishing effort decreased slightly. CPUE increased in 2006 but has not been corrected for the proportion of effort taking place in whitefish spawning locations where very high CPUE may occur.

Mean age of the catch was 8.33yr and has been relatively unchanged since 2000. Most of the catch was made up of 7, 8 and 9 year olds. The number of year classes in the fishery increased in 2006 although there are still fewer year classes than the long term average.

Total annual mortality was estimated to be relatively low at 42.5% (catch curve). SCAA derived mortality was 42.2% combining data from both QMA 4-4 and 4-7. This suggests mortality is currently at an acceptable value.

Cohort analysis suggests abundance is relatively stable, in a similar range since 2002. Exploitable biomass was projected to decline in 2007 due to poor recruitment.

Measures of harvest relative to biomass suggest that current harvests are below sustainable levels. SPR is relatively high (0.62) and the ratio of harvest to exploitable biomass from both models is less than 20%.

SCAA Model Summary Lake Whitefish QMAs 4-4 and 4-7

Data:	1978-2006 Ages: 3-10	
Gear:	Gill nets only	
Maturity		
	Age at First Spawning	6 years
	Age at 50% maturity	7 years
Spawning Biomass per Recruit		
	Base	0.703 kg
	Current	0.436 kg
Spawning potential reduction		0.620
Average yield per recruit		0.157 kg
Natural Mortality		0.318
Fishing Mortality (2004-2006)		
	Gill net, average 4+	0.140
Sea Lamprey Mortality (2004-2006)		
	Average ages 4+,	0.023
Total Mortality		
	Average 4+ (2004-2006)	0.481
	Average 4+ (2006)	0.422
Estimated Biomass (age 5+)		
	Average (2004-2006)	3 872 969 kg
Estimated Spawning biomass (Age5+)		
	Average(2004-2006)	2 806 454 kg
Quota (2006)	4-4	423 216 kg
	4-7	84 677 kg

The independent offshore index netting program shows two relatively strong year classes (2002 and 2003) while 2000 and 2001 are weak. The last strong year class previous to this was 1998. With full recruitment at age 7, these strong year classes will not likely begin to contribute to the fishery until 2009 or 2010

Summary and Recommendation

Information (except for the index program data) for this QMA is derived from UGLMU data up to 1994 and Saugeen Ojibway data from 1995 to the present. Based upon this information, the population in QMA 4-4 appears to be healthy, with moderate mortality and sufficient biomass for existing harvest levels. The apparently low proportion of the quota harvested in the last 2 years is curious and may be due to market conditions or catchability issues. Current quota still appears to be a sustainable value.

RECOMMENDATION: No Change

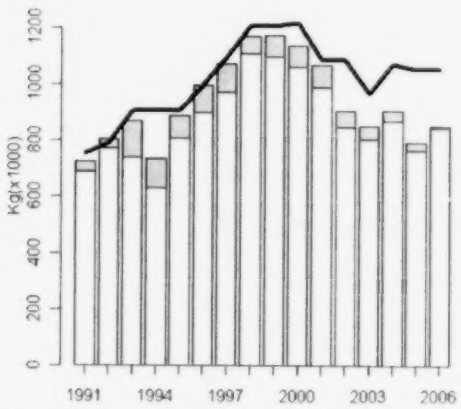

Figure 9. Lake whitefish quota (line) and harvest (bars) from management area 4-5.

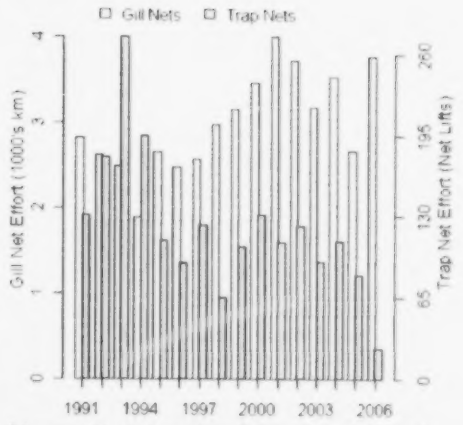

Figure 10. Lake whitefish targeted effort by gear for management area 4-5.

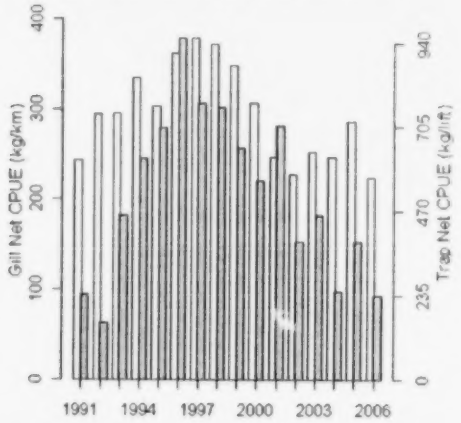

Figure 11. Lake whitefish CPUE by gear for management area 4-5.

Harvest of lake whitefish in QMA 4-5 was up in 2006 (81% of quota) from 2005 and was comparable to harvest levels reported from this QMA over the past four or five years. Harvest continues to be approximately 80 % of the peak harvests reported between 1996 and 2001. Although a trap net fishery exists in this QMA, less than one percent (0.7%) of the harvest was reported from trap net gear.

CPUE for lake whitefish in both trap nets and gill nets was down in 2006, both are noticeably lower then during the periods of peak harvest. In fact, the CPUE reported from each gear type was among the lowest values reported in the past 15 years.

SCAA Model Summary Lake Whitefish QMA 4-5

Data: 1978-2006 Ages: 3-10
Gear: Gill nets and trap nets

Age at First Spawning	5 years
Age at 50% Maturity	6 years
Spawning Biomass per Recruit	
Base	0.572 kg
Current	0.400 kg
Spawning potential reduction	0.699
Average yield per recruit	0.100 kg
Natural Mortality	0.358
Fishing Mortality (2004-2006)	
Gill net, average 4+	0.103
Trap net, average 4+	0.003
Sea lamprey mortality (ML)	
Average 4+ (2004-2006)	0.023
Total mortality (Z)	
Average 4+ (2004-2006)	0.487
Average 4+ (2006)	0.467
Biomass (age 5+)	
Average (2004-2006)	36 227 924 kg
Spawning biomass	
Average (2004-2006)	31 886 972 kg
Quota (2006)	1 054 822 kg

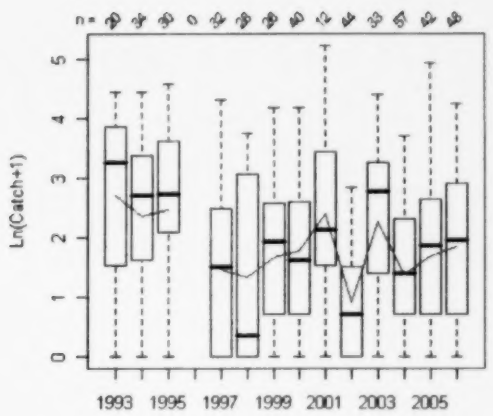

Figure 12. Box-whisker plot of the catch of lake whitefish in the OMNR's southern Lake Huron offshore assessment program 1993-2006. The solid line indicates the mean catch.

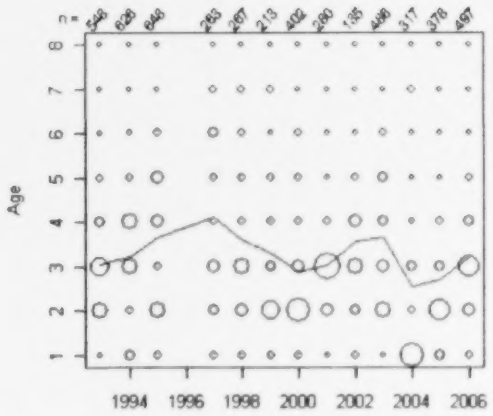

Figure 13. Bubble plot of the age distribution of lake whitefish caught in the OMNR's southern Lake Huron offshore assessment program 1993-2006. The size of each bubble is proportional to the contribution of that age to the catch in that year. The solid line indicates the mean age of the catch.

The age composition of lake whitefish from the gill net catch was dominated by six, seven and eight year olds, although fish from two to eleven years of age were represented in the catch. The age distribution sampled from the trap net fishery was also dominated by six, seven and eight year old fish despite the fact that the trap net fishery was sampled only three times. The mean age in both gears were similar (7.04 years for gill nets, 7.13 years for trap nets) and were consistent with the mean age observed in the catch from this QMA over the past six to eight years.

Mortality estimated from the age composition in the gill nets is high (A=73.9%) and is above the threshold used by the UGLMU for management of exploited lake whitefish populations (A≤65%). This mortality estimate is consistent with recent estimates which have been trending upward over the past several years.

Catch of lake whitefish in the offshore index program in QMA 4-5 have remained stable or increased slightly in recent years but are still noticeably lower than the period prior to 1996 (Fig. 12). A broad age distribution is often observed in this index program (Fig. 13). The pre-recruit index suggest that the 2003, and to a lesser extent, 2004 year classes are stronger than average. The last strong year class in this QMA was from 1998.

Growth (size at age) appears to have stabilized or even increased slightly since 2003. Average weight at age is still markedly lower than it was prior to 1997.

SCAA modeling suggests that the total biomass of lake whitefish in QMA 4-5was down in recent years, although the SSBR and SPR values (0.4 and 0.7, respectively) indicate that the stocks are not overexploited at current harvest levels. However, the exploitable biomass to harvest ratio (EBH) estimated through cohort analysis is at the upper threshold of 35%. The EBH ratio in this QMA has remained fairly stable for the last four to five years.

Summary and Recommendation

Exploitation of lake whitefish in QMA 4-5 is high with a number of the biological reference points (e.g. total mortality, EBH ratio) at or above the thresholds normally used by the UGLMU for management of lake whitefish stocks. However, a broad age distribution and expected recruitment of strong year classes in the coming years suggest that the current quota levels are not unrealistic. The fishery in QMA 4-5 will be monitored closely over the coming years.

RECOMMENDATION: No Change

Lake Whitefish QMA 4-7

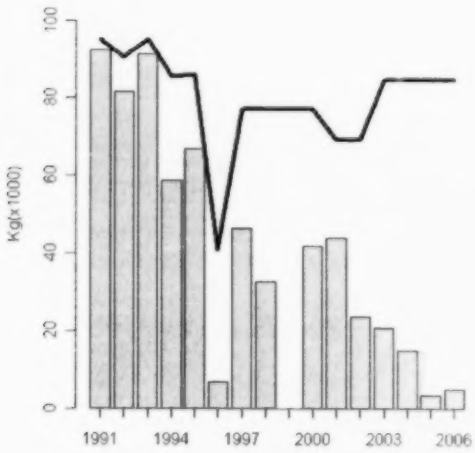

Figure 14. Lake whitefish quota (line) and harvest (bars) from management area 4-7.

Harvest of lake whitefish in QMA 4-7 increased somewhat in 2006 to 5,148 kg which was only 6% of the quota. CPUE was up slightly however both harvest and effort are minimal in this QMA making this a relatively unreliable parameter here.

Total annual mortality derived from catch curve data was 34.8% and SCAA analysis resulted in almost the same value (34.9%).

Summary and Recommendation

QMA 4-4 and 4-7 data were combined for SCAA analysis. Most SCAA results (Spawning Potential Reduction (SPR), spawning stock biomass, etc.) indicate a healthy population in this region of the lake. See QMA 4-4 for more detail.

RECOMMENDATION: **No Change**

Summary Status *WFO_AA45_G Whitefish		
Female maturity		
	Size at first spawning	1.10Kg
	Age at First Spawning	6 y
	Size at 50% maturity	1.25Kg
	Age at 50% maturity	7 y
Spawning biomass per recruit		
	Base SSBR	0.703 Kg (SD 0.001)
	Current SSBR	0.436 Kg (SD 0.010)
	SSBR at target mortality	0.117 Kg (SD 0.000)
Spawning potential reduction		
	At target mortality	0.62 (SE 0.014)
Average yield per recruit		0.157 Kg (SD 0.007)
Natural Mortality (M)		0.318 y^{-1}
Fishing mortality rate 2004-2006		
	Fully selected age to Gill Nets	9
	Fully selected age to trap nets	
	Average gill net F, ages 4+	0.123 y^{-1} (SE 0.013)
	Average trap net F, ages 4+	0. y^{-1} (SE 0.)
Sea lamprey mortality (ML)		
	(average ages 4+,2004-2006)	0.023 y^{-1}
Total mortality (Z)		
	Average ages 4+,2004-2006	0.461 y^{-1} (SE 0.013)
Recruitment (age-3)	(1997-2006 average)	2,672,600 fish (SE 250,700)
Biomass (age 3+)	(1997-2006 average)	4,719,200 Kg (SD 307,590)
Spawning biomass	(1997-2006 average)	2,997,400 Kg (SD 190,160)

Lake Whitefish QMA 5-1

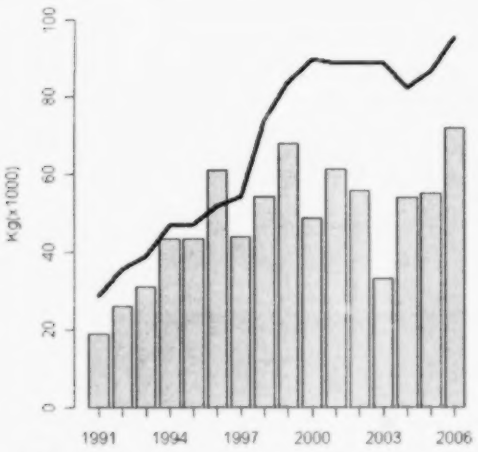

Figure 15. Lake whitefish quota (line) and harvest (bars) from management area 5-1.

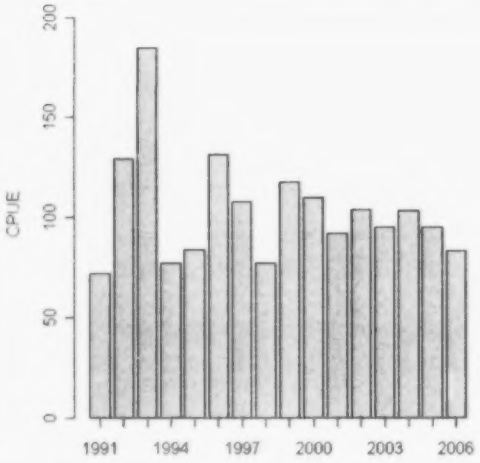

Figure 16. Lake whitefish gill net CPUE (kg/km) for management area 5-1.

Harvest of lake whitefish from QMA 5-1 was up substantially in 2006. This is the third year in a row where harvest was higher than the preceding year. In fact, the 2006 harvest is the highest ever reported from this QMA. Despite the increased harvest, only 75.4% of the allocated lake whitefish quota was harvested. In contrast to the increasing trend in harvest, CPUE has been trending downward over the past 10 to 12 years, although the CPUE reported in 2006 was still reasonably high (83.0 kg/km gill net).

The age distribution of the catch of lake whitefish from QMA 5-1 is fairly broad; twelve different age classes where observed. While fish from four to fifteen years of age were sampled from the catch, the bulk of the catch was composed of seven to twelve year old fish. Like other parts of Georgian Bay, there has been a noticeably shift in the age distribution of lake whitefish over the past ten to twelve years. For example, in 1996, the age composition consisted of eight year classes, and was dominated by five and six year olds. There were no fish over ten years of age in that catch.

Estimates of total annual mortality (A) calculated using catch curves suggest that total mortality has been relatively low over the past three to four years, ranging from 25% to 40% per year. Mortality estimates before 2003 were considerably higher, often exceeding 60% per year.

Exploitable biomass estimated using cohort analysis has been trending downward in recent years. However, the total harvest expressed as a proportion of exploitable biomass (EBH ratio) is still below the upper threshold used by the UGLMU for the management of exploited lake whitefish stocks.

Unfortunately, there is no current independent index program in this QMA. As such there is a large degree of uncertainty regarding recruitment of year classes before they appear in the commercial fishery.

Summary and Recommendation

The harvest of lake whitefish from this QMA was higher in 2006 than it has ever been, but CPUE has been slowly trending down over the past 10 to 12 years. The age distribution of the catch is very broad with six year classes being very well represented in the harvest. Estimates of total annual mortality continue to be low suggesting that current exploitation rates are not excessive. Uncertainty with respect to recruitment of younger year classes is a concern in this QMA.

RECOMMENDATION: +10%

Lake Whitefish QMA 5-2

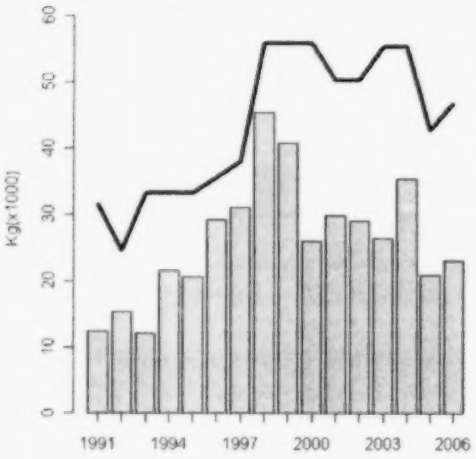

Figure 17. Lake whitefish quota (line) and harvest (bars) from management area 5-2.

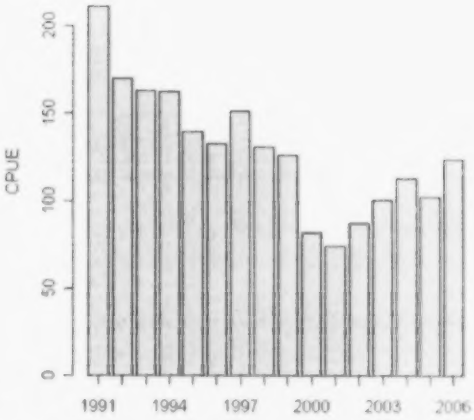

Figure 18. Lake whitefish gill net CPUE (kg/km) for management area 5-2.

The harvest of lake whitefish from QMA 5-2 was up slightly in 2006, but is still lower than the peak harvest levels that were reported between 1996 and 2004. On a zone-wide basis, 49.3% of the allocated quota was harvested.

Reported CPUE was up from 2005 and is consistent with an increasing trend that started in 2002.

Unfortunately, there were no samples collected from the commercial harvest of lake whitefish in QMA 5-2 in 2006, precluding a discussion of the age distribution of the catch or the calculation of catch curve mortality estimates from the current year. In recent years, catch sample data have suggested that the harvest from this QMA is composed of 6 to 11 different age classes, often with 8 or 9 year old fish being the most common age. Estimates of total mortality have been variable, but typically exceed 55.0 % per year.

Dormant or inactive quota continues to be an impediment to effective management in this QMA.

Summary and Recommendation

Harvest from this QMA has remained relatively stable over the past five to six years. During that time, reported CPUE has steadily increased although it still remains below pre-2000 values. Similar increases in CPUE have also been observed in adjacent QMAs.

RECOMMENDATION: **No Change**

Lake Whitefish QMA 5-3

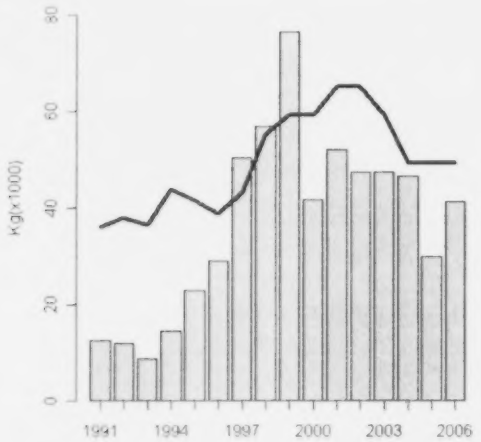

Figure 19. Lake whitefish quota (line) and harvest (bars) from management area 5-3.

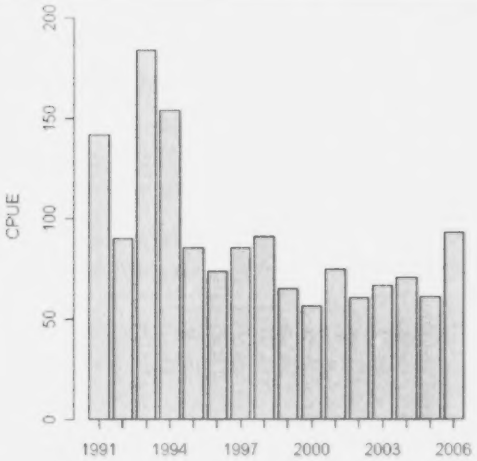

Figure 20. Lake whitefish gill net CPUE (kg/km) for management area 5-3.

The harvest of lake whitefish from QMA 5-3 was up noticeably from 2005 but is still below the level of harvest reported over the past decade. On a zone-wide basis, 83.8% of the issued quota was harvested.

Reported CPUE is also up noticeably from 2005 and is among the highest CPUE reported over the past ten years. However, the CPUE is still substantially lower than the values reported prior to 1994.

There were nine different age classes observed in the 2006 catch ranging from 5 to 15 years of age. Seven year old fish formed the bulk of the catch (50.0%). Six year old fish were also relatively well represented (27.5%). Other age classes constituted relatively minor components of the catch. The mean age of the catch dropped to 7.1 years in 2006, and is the lowest value observed since 2000.

Like other parts of Georgian Bay, there has been a noticeable shift in the age distribution of the catch of lake whitefish. Prior to 2000, four and to a lesser extent, three year old lake whitefish were frequently observed in the catch. Since 2000 however, these age classes have been absent from the catch. In QMA 5-3, five year old fish have also been absent from recent catches.

Estimates of total annual mortality (A) calculated using catch curves suggest that total mortality has been relatively low over the past five to six years, ranging from 25% to 40% per year.

Unfortunately, there is no current independent index program in this QMA. As such there is a large degree of uncertainty regarding strength of year classes before they recruit to the commercial fishery.

Summary and Recommendation

Harvest is consistent with levels reported over the past five to six years and the reported CPUE is among the highest observed over the past decade. Total annual mortality has been low, suggesting that current exploitation rates are not excessive. Uncertainty with respect to recruitment of younger year classes is a concern in this QMA.

RECOMMENDATION: No Change

Lake Whitefish QMA 5-4

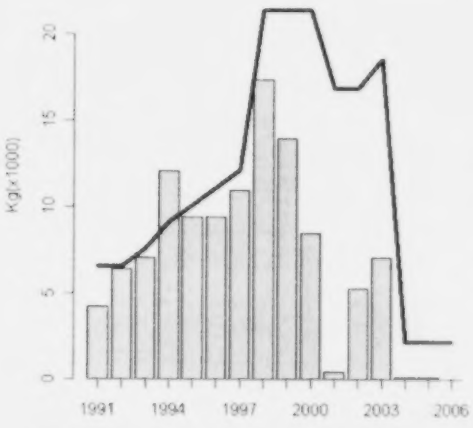

Figure 21. Lake whitefish quota (line) and harvest (bars) from management area 5-4.

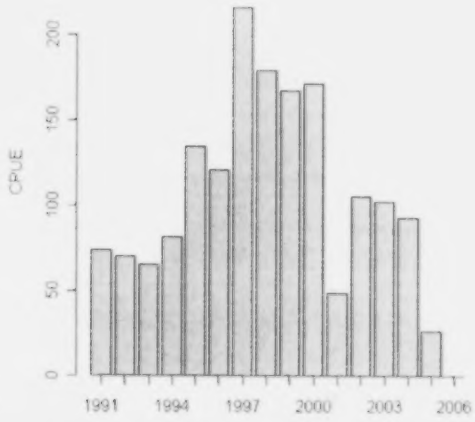

Figure 22. Lake whitefish gill net CPUE (kg/km) for management area 5-4.

Summary and Recommendation

There was no lake whitefish harvest or effort reported from QMA 5-4 in 2006. This is the first year were no fishing activity occurred in the zone, although harvest and effort have been very low since the retirement of the major commercial fishery in 2005.

RECOMMENDATION: **No Change**

Lake Whitefish QMA 5-5

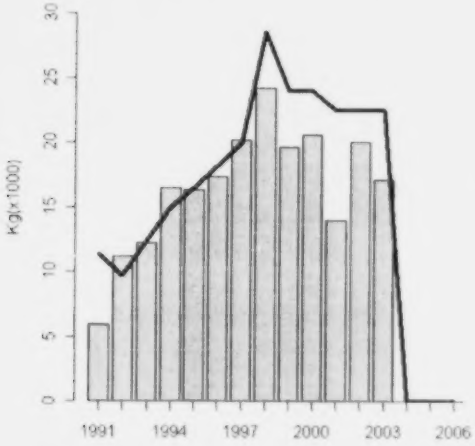

Figure 23. Lake whitefish quota (line) and harvest (bars) from management area 5-5.

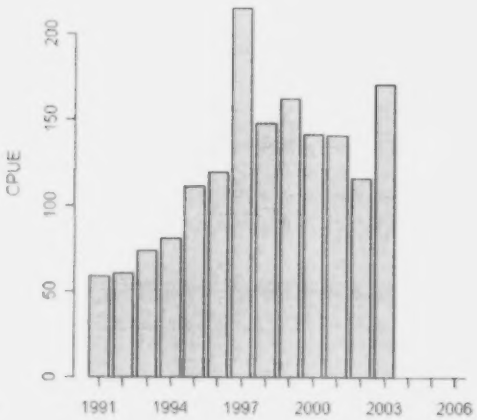

Figure 24. Lake whitefish gill net CPUE (kg/km for management area 5-5.

Summary and Recommendation

There is currently no active fishery in this QMA. There was no lake whitefish harvest or effort reported in 2006.

RECOMMENDATION: **No Change**

Lake Whitefish QMA 5-6

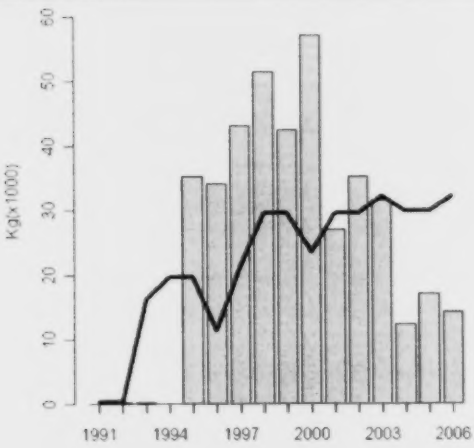

Figure 25. Lake whitefish quota (line) and harvest (bars) from management area 5-6.

Harvest of lake whitefish in QMA 5-6 was down slightly in 2006 relative to 2005. The harvest since 2004 is noticeably lower than the harvest reported from this QMA between 1995 and 2003. On a zone wide basis, 44.1% of the issued quota was harvested.

Reported CPUE is up slightly from 2005 and is well within the range typically observed in this QMA. CPUE in this QMA has fluctuated without trend over the past 10 to 15 years.

The catch in QMA 5-6 was composed of six different age classes between 5 and 11 years of age. The mean age has remained relatively unchanged over the last six to eight years. Most of the fish in the catch in 2006 were seven year olds, and to a lesser extent six year olds (the 1999 and 2000 year classes). Other year classes were relatively minor components of the catch.

The catch curve mortality estimate (A) using 2006 data was 46.7%, below the upper threshold used by the UGLMU for management of exploited lake whitefish stocks. While this mortality estimate is higher than most recent years in this QMA, it is considerably lower than the 1997 to 1999 period, when harvest peaked and the estimate of total annual mortality ranged from 74 – 81% per year.

Like the catch in other QMAs in south-central Georgian Bay, the age composition of the catch has shifted to older fish. Prior to 1999, four, three and even two year old lake whitefish were regularly sampled from the commercial catch in QMA 5-6. Since 1999 however, two and three year old fish have rarely been observed and four year old fish have been seen in lower and lower numbers. In 2006, no four year old lake whitefish were sampled at all. This change in the age composition may be caused by changes in the fishery (i.e. spatial or temporal changes), changes in the gear (i.e. mesh size) or may reflect changes in whitefish growth (i.e. declining growth resulting in a delay in recruitment to commercial gear).

Like other QMAs in southern Georgian Bay, the bulk of the harvest in 2005 and 2006 was from the 1999 year class. There is little evidence of subsequent year classes in the available data.

Summary and Recommendation

Exploitation of lake whitefish in this QMA appears to be reasonable, resulting in moderate total mortality estimates. However, like other areas of Georgian Bay, the harvest is largely attributable to a single, exceptionally large year class (the 1999 cohort). There is little evidence of subsequent year classes, and as such, recruitment of lake whitefish in this QMA is a major concern.

RECOMMENDATION: **No Change**

Lake Whitefish QMA 5-7

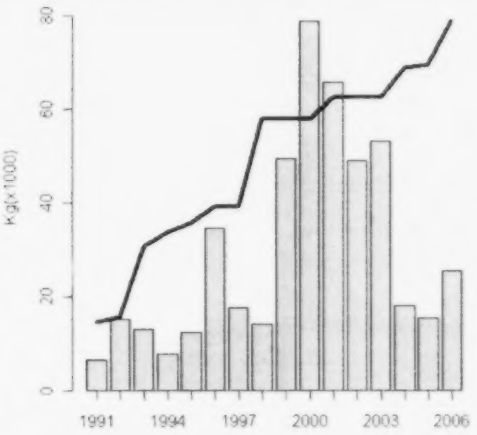

Figure 26. Lake whitefish quota (line) and harvest (bars) from management area 5-7.

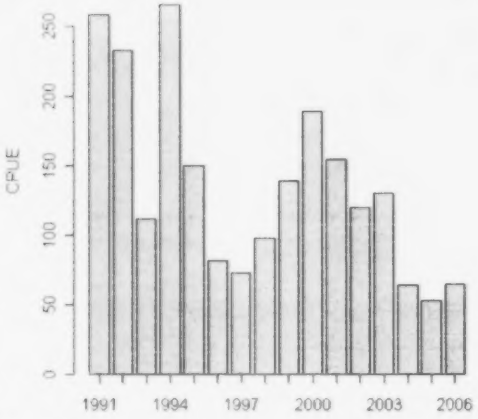

Figure 27. Lake whitefish gill net CPUE (kg/km) for management area 5-7.

Harvest of lake whitefish in QMA 5-7 was up in 2006 relative to 2004 and 2005, but was still noticeably lower than the peak period between 1999 and 2003. On a zone-wide basis, 32.5% of the issued quota was harvested; however, intermittent participation in the fishery continues to be an issue in this QMA.

Reported CPUE in this QMA was up from 2005, but is still noticeably lower than the period prior to 2003. At least part of this decline in CPUE since 2004 may be attributable to changes in the fishery. Large mesh gear (≥ 5.25") has been deployed with increasing frequency in this QMA in recent years. Between 2004 and 2006, 70-77% of the reported gill net effort was from these large mesh nets. As a result, the overall CPUE is lower as only the largest fish are captured effectively.

Seven different age classes were sampled from the catch in QMA 5-7. Fish from 5 to 11 years of age were observed, although fish six, seven and eight years of age formed the bulk of the catch. The mean age of the catch was 6.9 years, well within the range typically observed in this QMA over the past eight to nine years.

Annual estimates of total mortality (A) calculated using catch curve analysis suggest that mortality has been rising steadily in recent years and that in the most recent years (2005 and 2006) total annual mortality has been at or above the upper limit used by the UGLMU for the management of exploited lake whitefish stocks (65%). Between 1998 and 2004, estimates of the total annual mortality ranged from 33 to 52% per year.

There is no independent index program in QMA 5-7, but the lack of recruitment in recent years is a significant concern throughout southern Georgian Bay (Cottrill, 2006).

Summary and Recommendation

Harvest in this QMA is down from the recent past, however, active fishermen are able to fill their quota using large mesh nets almost exclusively, suggesting that abundance of lake whitefish in this QMA remains fairly stable. High mortality estimates and little evidence of recruitment following the 1999 year class (throughout Georgian Bay) are significant causes for concern.

RECOMMENDATION: No Change

Lake Whitefish QMA 5-8

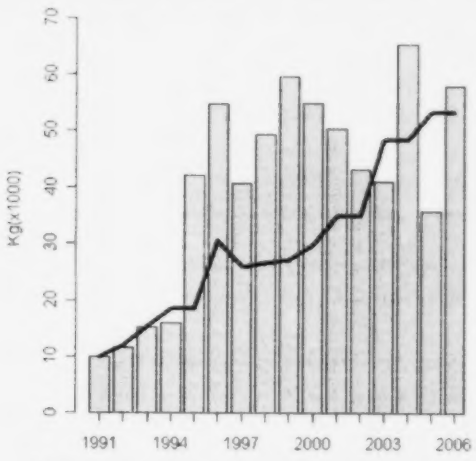

Figure 28. Lake whitefish quota (line) and harvest (bars) from management area 5-8.

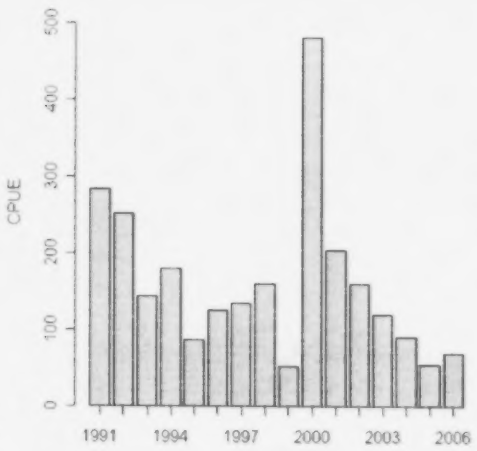

Figure 29. Lake whitefish gill net CPUE (kg/km) for management area 5-8.

The harvest of lake whitefish in QMA 5-8 was up in 2006 and was among the highest ever observed in this QMA. In fact, only 1999 and 2004 had reported harvest levels that were greater. On a zone wide basis, 108.7% of the allocated quota was harvested.

Although CPUE was up slightly in 2006, it was among the lowest CPUE values reported in this QMA in the past 20 years. The reported CPUE in 2006 (69.4 kg/km) was noticeably lower than the peak CPUE from 2000 (481.6 kg/km). Between 2000 and 2005, CPUE of lake whitefish steadily declined and is consistent with a long-term (although variable) declining trend in CPUE between 1991 and 2006.

There were seven different age classes in the catch. Fish ranged from 5 to 13 years of age. The modal age was seven years, but fish between five and eight were well represented in the catch. The mean age of the catch (7.07 years) was up from 2004 and 2005, but was consistent with the mean age observed in this QMA over the past several years. The mean age in QMA has been increasing since about 1998. Prior to 1998, the mean age was typically between 4.8 and 5.5 years. Similarly, the modal age has drifted from predominantly four or five year olds, to five, six and seven year olds. The most striking change in the age composition of the catch in 2005 and 2006, is the apparent absence of three and four year old fish. Prior to 2000, 25-50%

SCAA Model Summary Lake Whitefish QMA 5-8

Data:	1978-2006 Ages: 3-10	
Gear:	Gill nets only	
Maturity		
	Age at First Spawning	7 years
	Age at 50% maturity	7 years
Spawning Biomass per Recruit		
	Base	1.151 kg
	Current	0.836 kg
Spawning potential reduction		0.727
Average yield per recruit		0.073 kg
Natural Mortality		0.283
Fishing mortality (2004-2006)		
	Gill net, average 4+	0.021
Sea Lamprey Mortality (2004-2006)		
	Average 4+	0.022
Total Mortality		
	Average 4+ (2004-2006)	0.327
	Average 4+ (2006)	0.334
Estimated Biomass (age 5+)		
	Average(2004-2006)	2 931 210 kg
Estimated Spawning biomass (Age5+)		
	Average(2004-2006)	2 349 283 kg
Quota (2006)		53 326 kg

of the catch was made up of these age classes. The absence of these fish may be a result of a number of issues including lack of recruitment, change in growth or changes in the fishery and/or sampling activity.

The catch curve mortality estimate based on 2006 data is below the upper threshold used by UGLMU for lake whitefish (65% year) and is within the range typically observed in this QMA. Catch curve mortality estimates ranged from 33% to 52% between 1991 and 2006).

Cohort analysis suggests that the total exploitable biomass is continuing to drop from peak abundance in 2004. While total exploitable biomass is comparable to levels observed between 1995 and 2003, the number of age classes contributing to the catch is substantially lower. Since 2004, close to 60% of the total exploitable biomass has been attributed to the 1999 year class. The 2000 year class has contributed between 10% and 20 %, while other year classes contribute significantly less.

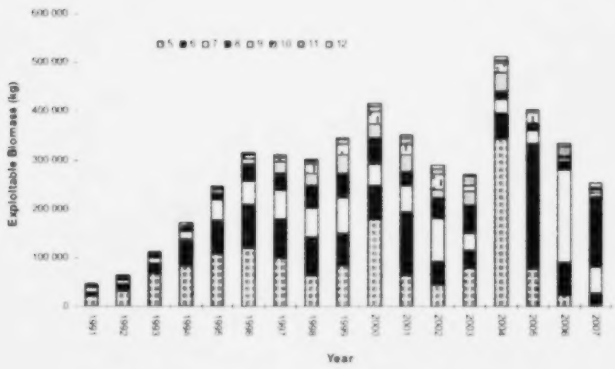

Figure 30. Estimated exploitable biomass of lake whitefish by age in QMA 5-8 from 1991 to 2007.

The SCAA model suggests that biomass has been declining since 2000. Total and spawning biomass are lower in QMA 5-8 than they have been over the past 20 years, although total biomass is up slightly in 2006 relative to 2005. Despite the decline, the SCAA also suggests that exploitation is relatively light, with SPR of 73% and an exploitable biomass to harvest estimate ratio of less than 0.25.

Recruitment of year classes after 1999 continues to be a concern in this QMA (Figure 31). The PRI for the 1999 year class was 42.4, more than four times stronger than the long-term average. All of the year classes between 1998 and 2001 have PRI values that are above the long term average, although the 2000 and 2001 year classes have not appeared in the commercial catch in any appreciable numbers to date. Subsequent year classes have had PRI values that have ranged from 0 to 2.36 and have not been seen in the commercial fishery. In fact, no fish from the 2004 year class have been caught in the index gear.

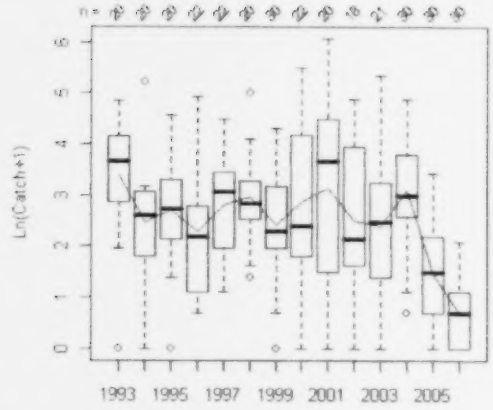

Figure 31. Box-whisker plot of the catch of lake whitefish in the OMNR's southern Georgian Bay offshore assessment program 1993-2006. The solid line indicates the mean catch.

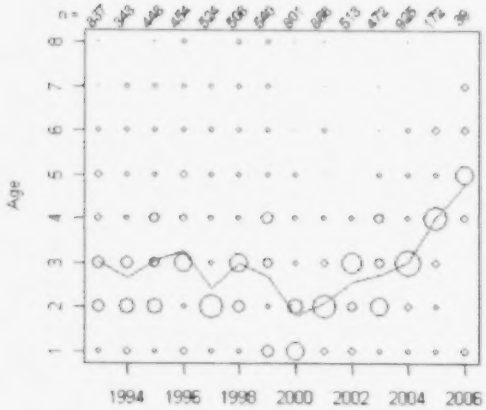

Figure 32. Bubble plot of the age distribution of lake whitefish caught in the OMNR's southern Georgian Bay offshore assessment program 1993-2006. The size of each bubble is proportional to the contribution of that age to the catch in that year. The solid line indicates the mean age of the catch.

Summary and Recommendation

The 1999 year class continues to support the fishery in this QMA. Overall, mortality is within the range typically observed for exploited lake whitefish stocks and exploitable biomass remains high. However, lack of recruitment, and the shrinking number of age classes in the catch are cause for concern. Supporting evidence suggests that the strength of all year classes following the 1999 cohort may be extremely weak.

RECOMMENDATION: No Change

Lake Whitefish QMA 5-9

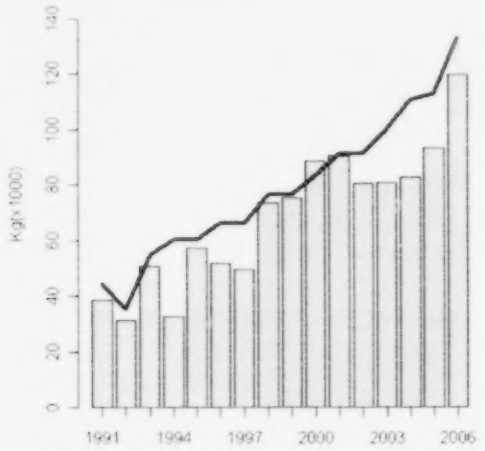

Figure 33. Lake whitefish quota (line) and harvest (bars) from management area 5-9.

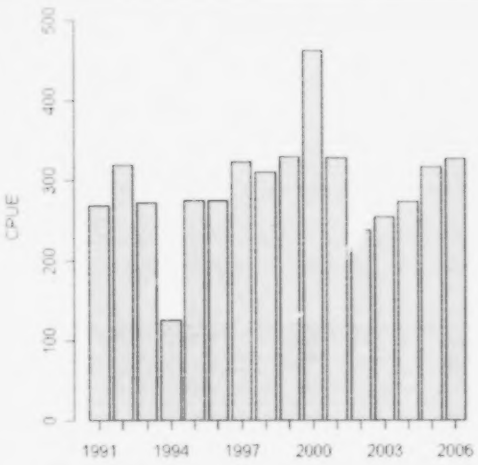

Figure 34. Lake whitefish gill net CPUE (kg/km) for management area 5-9.

Harvest of lake whitefish from QMA 5-9 was up in 2006 and was the highest ever reported in this QMA. The increase harvest is consistent with an increasing trend that started in the early 1990s. On a zone wide basis, 90.2% of the allocated quota was harvested in 2006.

Similarly, CPUE was up again in 2006. This was the fourth year in a row where CPUE was up from the preceding year. Although CPUE is still lower than the peak value reported in 2000, it is close to the long term average for this QMA.

The catch in QMA 5-9 was composed of nine different year classes between 5 and 13 years of age. Fish between six and eight formed the bulk of the catch (i.e. >99%). The mean age of the catch, (6.97 years) was up from 2005, but is consistent with the mean age observed over the past five years. There has been a distinct shift in the mean age of the catch in this QMA. Prior to 2000, the mean age typically fluctuated between five and six years of age, but since 2000, the mean age has remained above 6.3 years. Like the catch in QMA 5-8, fish younger than five years of age have been absent from the catch samples in both 2005 and 2006. This also reflects a substantial change in the age composition of the catch. Prior to 2000, four year old fish were an important component of the catch, constituting more than a third of the catch in some years.

SCAA Model Summary Lake Whitefish QMA 5-9

Data:	1978-2006 Ages:	3-10
Gear:	Gill nets only	
Maturity		
	Age at First Spawning	3 years
	Age at 50% maturity	6 years
Spawning Biomass per Recruit		
	Base	1.364 kg
	Current	0.453 kg
Spawning potential reduction		0.332
Average yield per recruit		0.300 kg
Natural Mortality		0.289
Fishing mortality (2004-2006)		
	Gill net, average 4+	0.131
Sea Lamprey Mortality (2004-2006)		
	Average 4+	0.061
Total Mortality		
	Average 4+ (2004-2006)	0.481
	Average 4+ (2006)	0.523
Estimated Biomass (age 5+)		
	Average (2004-2006)	904 980 kg
Estimated Spawning biomass (Age5+)		
	Average (2004-2006)	716 097 kg
Quota (2006)		132 797 kg

Catch curve mortality estimates have been increasing for four consecutive years. The estimated total annual mortality (A) for 2006 was 57.1%, approaching the upper threshold used by the UGLMU for the management of exploited lake whitefish stocks. In fact, the estimate of total annual mortality in 2006 was higher than the past ten years.

Cohort models suggest that exploitable biomass peaked in 2004, as the 1999 year class entered the fishery. Exploitable biomass has since declined. The 1999 year class continues to form the bulk of the exploitable biomass (>60%). This trend is expected to continue for the next couple of years. Since 2004, other year classes have made up less than 20% of the exploitable biomass (most less than 5%). This dominance of the exploitable biomass by a single year class is a distinct shift from the population structure in this QMA prior to 2004. During that time, the exploitable biomass was consistently made up of four or more age classes that were relatively evenly represented (Fig. 35).

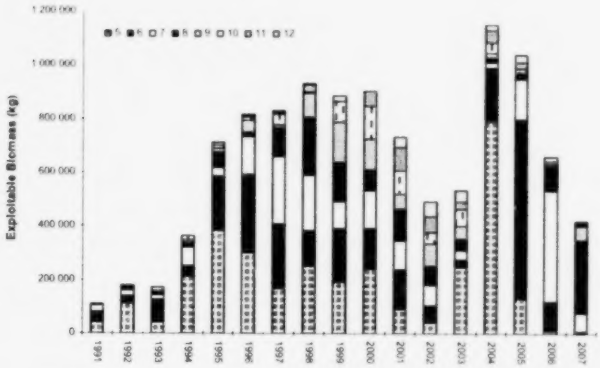

Figure 35. Estimated exploitable biomass of lake whitefish by age in QMA 5-9 from 1991 to 2007.

The SCAA model suggests a similar declining trend in recent years. The model suggests that total biomass peaked in 2002 after rising sharply from 2000. When only exploitable biomass is considered (fish five years of age or more), the SCAA and cohort models are even more similar, with virtually identical peaks in 2004 coinciding with the appearance of the 1999 year class.

The SCAA model also suggests that the whitefish stock in QMA 5-9 is among the most heavily exploited on Lake Huron with exploitable biomass to harvest ratio of 0.2, an overall fishing mortality of 18.3% and an SPR of 0.255 (the lowest on the lake).

While there is no offshore index program in this QMA, trends in recruitment between 5-8 and 5-9 are often highly correlated. As a consequence, the recruitment of year classes subsequent to the 1999 cohort is a very real concern for this QMA as well. The lack of fish under five years of age in 2004, 2005 and 2006 is consistent with low recruitment in recent years, and is in contrast to the 1990s when four, and to a lesser extent three, year old lake whitefish were regularly sampled in the commercial catch from this QMA.

Summary and Recommendation

While exploitable biomass continues to be relatively high in this QMA, it is largely attributable to a single, exceptionally strong year class (i.e. the 1999 cohort). This cohort is expected to form the bulk of the catch for the next couple of years, but there is little evidence of subsequent year classes in the catch. As such, lack of recruitment in this QMA is a significant concern.

RECOMMENDATION: No Change

Lake Whitefish QMA 6-1

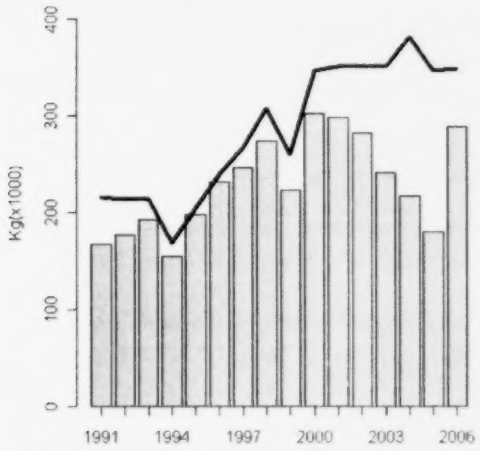

Figure 36. Lake whitefish quota (line) and harvest (bars) from management area 6-1.

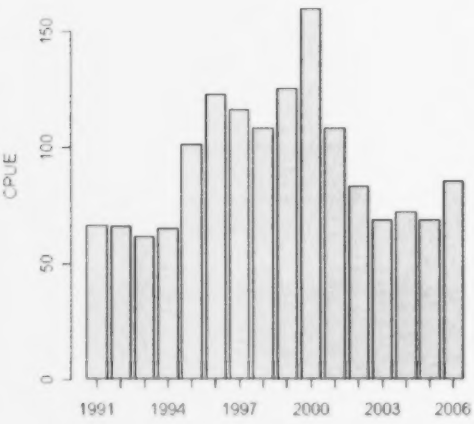

Figure 37. Lake whitefish gill net CPUE (kg/km) for management area 6-1.

Harvest of lake whitefish in QMA 6-1 was up noticeably in 2006 relative to 2005. In fact, the harvest in 2006 was close to the peak harvest observed in this QMA between 2000-2002, and stops a five year trend where the harvest in each subsequent year was lower than the last. On a zone wide basis, 82.7% of the issued lake whitefish quota was harvested.

CPUE was also up in 2006 from the previous three years, but still well below the peak that occurred between 1995 and 2001. Although trap nets have been used in this QMA historically, no trap net lifts were reported in 2006.

The age of the catch ranged from 3 to 14 years, with five to nine year old fish forming the bulk of the catch. The mean age of the catch (6.91 years) is up from last year and is the highest mean age ever observed in this QMA. The mean age of the catch has been trending upward over the past 10-15 years. Over that time period, the contribution of three and four year old fish has been declining.

Estimated total mortality calculated from the age composition of the catch was 43.6%, below the upper threshold used by the UGLMU for whitefish management and well within the range typically observed in this QMA.

Cohort analysis indicates that the exploitable biomass of lake whitefish in this QMA may be

SCAA Model Summary Lake Whitefish QMA 6-1

Data:	1978-2006 Ages:	3-10
Gear:	Gill nets only	
Maturity		
	Age at First Spawning	3 years
	Age at 50% maturity	5 years
Spawning Biomass per Recruit		
	Base	1.102 kg
	Current	0.539 kg
Spawning potential reduction		0.489
Average yield per recruit		0.315 kg
Natural Mortality		0.335
Fishing mortality (2004-2006)		
	Gill net, average 4+	0.242
Sea Lamprey Mortality (2004-2006)		
	Average 4+	0.063
Total Mortality		
	Average 4+ (2004-2006)	0.640
	Average 4+ (2006)	0.718
Estimated Biomass (age 5+)		
	Average(2004-2006)	1 051 829 kg
Estimated Spawning biomass (Age5+)		
	Average(2004-2006)	906 819 kg
Quota (2006)		349 239 kg

increasing but that the ratio of exploitable biomass to harvest is currently at the target threshold (0.35). However, the estimate of exploitable biomass is very sensitive to the terminal mortality values used in the calculations and provide conflicting trends at different mortality levels.

SCAA models suggest that the lake whitefish population in QMA 6-1 is fairly heavily exploited, at current mortality levels the SPR is 0.49, among the lowest (i.e. worst) on the lake. Additionally, the total and fishing mortality estimates are among the highest on the lake at F_{G}=0.20 and Z=0.60. The SCAA model also suggests that spawning and total biomass are down from the peaks that occurred over the past ten years, and are closer to the levels observed prior to the 1990's.

Summary and Recommendation

The harvest and CPUE were both up relative to 2005. The age distribution and catch curve mortality are consistent with a healthy, robust lake whitefish population. Cohort models results are sensitive to input parameters and produce conflicting biomass estimates depending on starting values, while the SCAA model suggest that the stock is fairly heavily exploited and that total biomass is lower than it has been in the past 10 to 15 years.

RECOMMENDATION: No Change

Lake Whitefish QMA 6-3

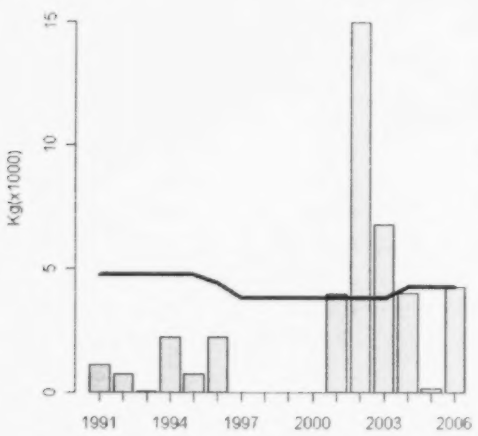

Figure 38. Lake whitefish quota (line) and harvest (bars) from management area 6-3.

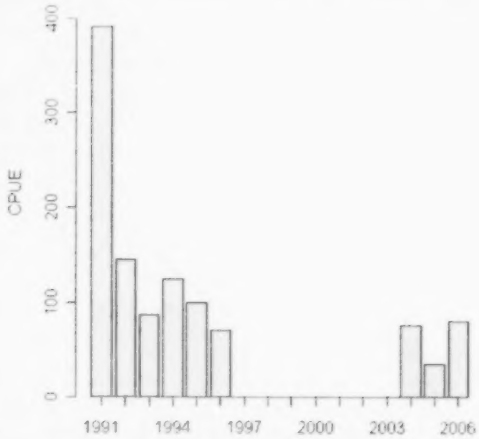

Figure 39. Lake whitefish gill net CPUE (kg/km) for management area 6-3.

Harvest of lake whitefish in QMA 6-3 was up sharply in 2006 relative to 2005. On a zone-wide basis, 99.8% of the issued lake whitefish quota was harvested.

CPUE of lake whitefish was up from 2005, but was still noticeably lower than the peak CPUE reported in 1991.

Unfortunately, there were no samples collected from the commercial harvest of lake whitefish in QMA 6-3, precluding a discussion of the age distribution of the catch or the calculation of catch curve mortality estimates.

Independent assessment netting in northeast Georgian Bay conducted by the AOFRC suggests that recruitment of the 1999-2001 year classes was strong in this part of the lake, but there is little information about the strength of subsequent year classes. Where such data exists, it suggests that the recruitment of subsequent year classes is extremely weak in other parts of Georgian Bay. However, the attributes of the harvest in neighboring QMAs suggest that lake whitefish stocks in northeast Georgian Bay are healthy and can support existing harvest levels.

Summary and Recommendation

Harvest and CPUE were both up in 2006. Increasing abundance in neighboring QMAs likely indicate increased abundance in QMA 6-3.

RECOMMENDATION: No Change

Bloater (Deepwater Chub) – Overall

Deepwater chub total harvest in 2006 was only 84 kg, an all time low. There was no harvest or targeted effort for deepwater chub in most QMAs.

Independent assessment data suggests that small deepwater chub are relatively abundant in the offshore waters of the main basin and parts of Georgian Bay (Schaeffer et al. 2007). However, commercial sized deepwater chub continue to be rare. The reason for the absence of large deepwater chub is not entirely clear. It may reflect a shift in the offshore fish community as a response to the widespread establishment of non-native species such as zebra and quagga mussels or possibly a response to increasing numbers of large native predators.

The pre-recruit index for the southern Lake Huron index program suggests that the 2003 and 2004 year classes are both strong, although it will be several years before they recruit to commercial fishing gear.

Summary and Recommendation

There is no indication that deepwater chub abundance has increased to the point that fully allocated harvests are feasible.

RECOMMENDATION: 50% of BASE
(lakewide)

Walleye - Overall

Walleye quotas for the commercial fishery are managed in two manners in Lake Huron, as production quotas and as incidental quotas. Production quota areas are considered to be those with self sustaining populations large enough to allow targeted harvesting. These include QMAs 4-5, 5-1, 5-2, 5-7, and 6-1. In all other QMAs, small walleye quotas have been allocated to allow for the occasional incidental capture of this species while targeting other species, in most cases lake whitefish or yellow perch.

The harvest of walleye was up in 2006 relative to the previous three or four years. Most of this increase in harvest occurred in the southern main basin. Despite the jump in harvest of walleye in the main basin, harvest is still substantially lower than the harvest reported between 1980 and 1994. Since that time, harvest of walleye has been declining consistently year after year. Harvest of walleye from the North Channel and Georgian Bay are also depressed relative to historical levels, although the harvest in the North Channel in 2006 was up noticeably from the previous year.

The jump in harvest and CPUE in both the North Channel and the main basin is almost entirely attributable to the appearance of a single, exceptionally strong year class (the 2003 year class), rather than a full recovery of the walleye populations. This year class has not appeared in Georgian Bay walleye stocks, and as such, those stocks continue to be depressed relative to historical abundance. If more year classes do not recruit to the fishery in the main basin and North Channel soon, the current increase in walleye harvests will only be temporary.

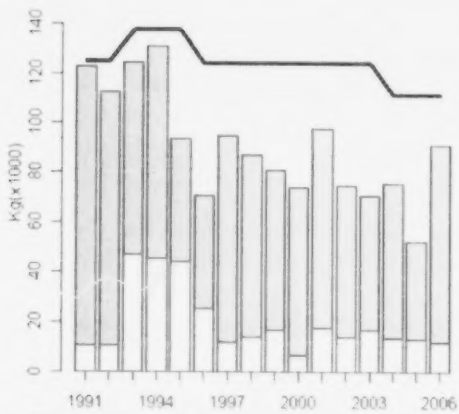

Figure 40. Walleye quota (line) and harvest (bars) from management area 4-5.

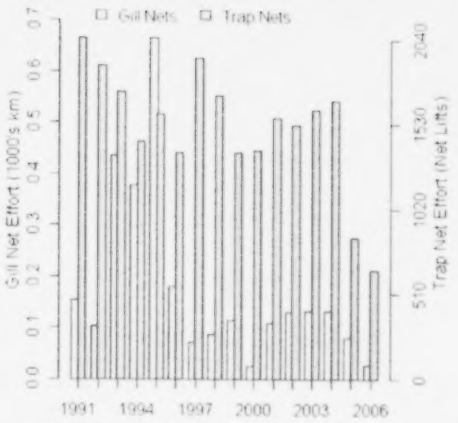

Figure 41. Walleye targeted effort by gear for management area 4-5.

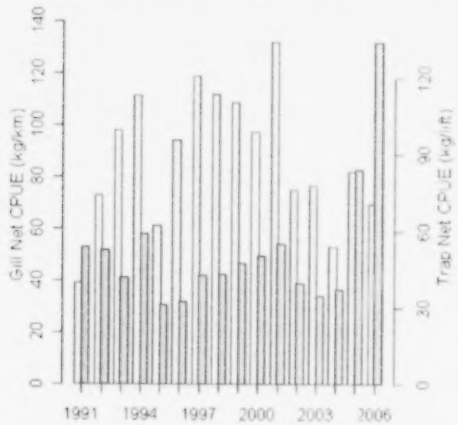

Figure 42. Walleye gill net CPUE (kg/km) and trap net CPUE (kg/lift) for management area 4-5.

Harvest of walleye was up in 2006 from 2005 and is comparable to the harvest levels observed prior to 1994. On a zone wide basis, 81.5% of the issued quota was harvested in 2006. Most of the increase in harvest was attributable to increases from the trap net gear. Harvest from gill nets has remained relatively constant over the past four to five years. Approximately 90% of the harvest in 2006 came from trap nets.

The CPUE of walleye in trap nets was up substantially in 2006 and was the highest reported CPUE in the past 27 years. Gill net CPUE remains relatively unchanged from the past three to four years, but is below the peak values observed between 1997 and 2001.

The age distribution of walleye in the catch from QMA 4-5 was dominated by the 2003 year class. Although walleye from 2 to 11 years were observed, and fish from two to eight years of age were reasonably well represented, the 2003 year class made up almost 70% of the catch. Despite the dominance of a relatively young age class, the mean age of the catch actually rose in 2006 from 3.11 to 3.71 years, well within the range typically observed in this QMA. The mean age of the fish from gill nets was noticeably higher at 5.35 years and was unchanged from 2005.

The catch of walleye in the OMNR's offshore index program was also dominated by three year olds, with 76% (51/67) of the walleye sampled belonging to this age class.

Summary and Recommendation

Although the catch of walleye is increasing in southern Lake Huron, the age structure indicates that this is largely due to a single, unusually large year class, not a complete recovery of the walleye population. The 2003 year class will likely support the recreational and commercial fishery for a few more years, but without successive strong year classes in the near future, the re-establishment of walleye stocks comparable to those from the early 1990s is unlikely.

RECOMMENDATION: No Change

Walleye QMA 5-2

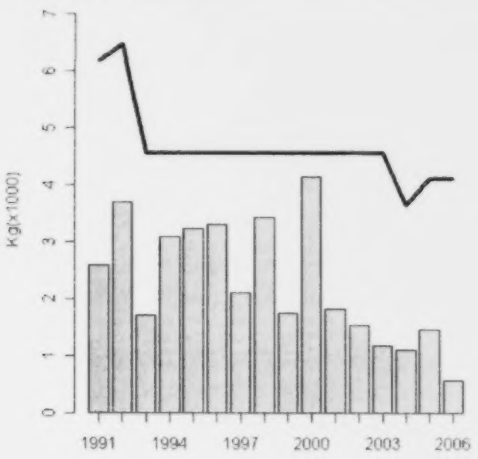

Figure 43. Walleye quota (line) and harvest (bars) from management area 5-2.

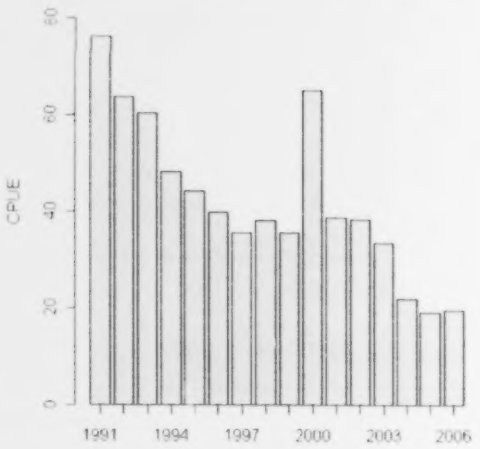

Figure 44. Walleye gill net CPUE (kg/km) for management area 5-2.

Harvest of walleye was down substantially in 2006 to only 573 kg, the lowest harvest in the past 27 years, and less than 10% of the peak harvest values that were reported in the lake 1970s and early 1980s. Harvest has been trending downward since 2000. On a zone wide basis, less than 14% of the walleye quota issued in QMA 5-2 was harvested in 2006.

While CPUE remained unchanged from 2005, it was among the lowest observed in the time series for this QMA, and is consistent with a downward trend dating back to the early 1990s.

Unfortunately, catch samples for walleye in this QMA have not been collected reliably in recent years, at least partially because targeted harvest events have become rare. As a consequence, mortality estimates and characteristics of the age distribution of the catch are not available.

Summary and Recommendation

Declining CPUE and harvest suggest that the walleye stocks in this QMA continue to be depressed. The status of the walleye stocks in eastern Georgian Bay in general, and QMA 5-2 specifically, continue to be a significant concern for the UGLMU.

RECOMMENDATION: -10%

Walleye QMA 5-7

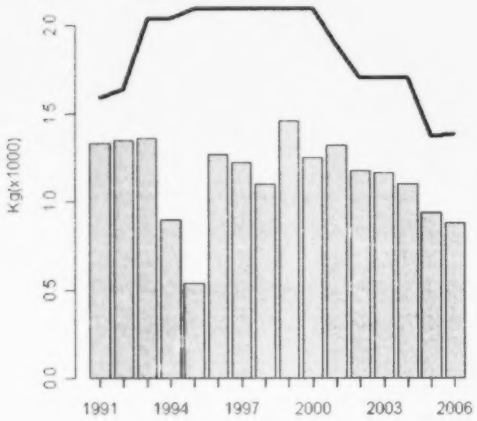

Figure 45. Walleye quota (line) and harvest (bars) from management area 5-7.

Harvest of walleye in QMA 5-7 is down again in 2006, fifth year in a row where harvest is lower than the previous year. The harvest in 2006 (882 kg) was the lowest reported in the past 11 years, and is consistent with a declining trend that started in 1999. On a zone wide basis, 63.8% of the walleye quota issued for QMA 5-7 was harvested.

Targeted effort was also down in 2006 from peak values reported in 2004 and 2005, but is well within the range observed over the last 10 years. CPUE however, while up from 2004 and 2005, remained low compared to historical values, especially prior to 1997.

There is relatively little age distribution data available for the catch of walleye from this QMA. Despite having between 11 and 27 trips per year on board commercial fishing vessels since 2000, relatively few walleye have been sampled, or even observed in the catch. For those years where reasonable samples exist, catch curve mortality estimates suggest that total annual mortality is between 43 and 45% per year, above the bench mark currently used by the UGLMU for walleye management.

Recruitment of new year classes into this fishery is unknown.

Summary and Recommendation

Dropping CPUE and declining harvest suggest that the walleye stocks in this QMA continue to be depressed. The status of the walleye stocks in eastern Georgian Bay in general, and QMA 5-7 specifically, continue to be a significant concern for the UGLMU.

RECOMMENDATION: -10%

Walleye QMA 6-1

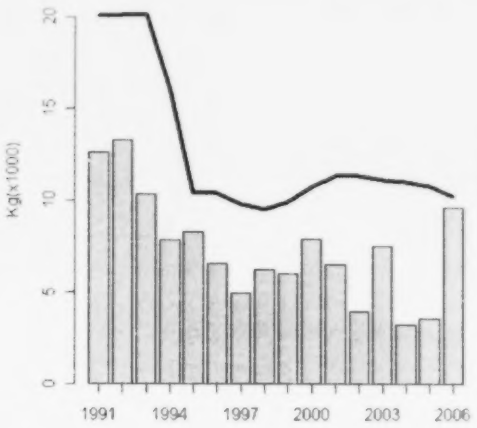

Figure 46. Walleye quota (line) and harvest (bars) from management area 6-1.

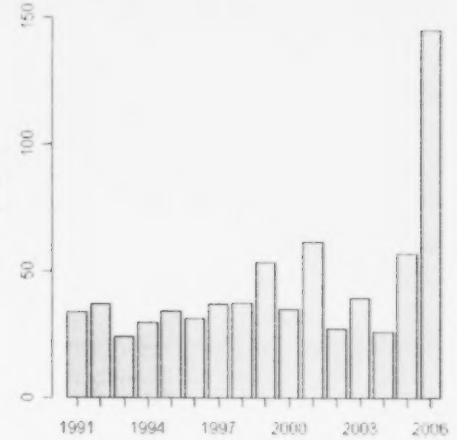

Figure 47. Walleye gill net CPUE (kg/km) for management area 6-1.

Harvest of walleye in 2006 was up noticeably from previous years, and was the highest harvest reported since 1993. On a zone-wide basis, 94.0% of the allocated quota was harvested. This increase in harvest is directly associated with a substantial jump in the CPUE of walleye in walleye targeted effort. The CPUE reported for 2006 was two to three times higher than any previous year back to 1979, although the total effort is also much lower than years prior to 2000.

The age distribution of the catch consisted of five different year classes between two and eight years of age. Three and four year old fish were the most common age classes. The mean age of the catch (3.60 years) was up noticeably compared to the last couple of years, but is still lower than the mean age observed throughout most of the 1990s. During that time, the catch was typically composed of 6 to 11 different age classes and the mean age typically ranged from 4.8 to 7.0 years.

Catch curve mortality estimates from the 2006 data suggest that the total annual mortality (A= 60%) is substantially higher than the target value used by the UGLMU for walleye and is noticeably higher than the estimates observed over the previous decade. During that time, annual mortality estimates typically ranged from 20-45% year. However, an inflated mortality estimate from catch curves is not unusual when a very strong year class first recruits to a fishery.

Summary and Recommendation

Although the CPUE of walleye is up noticeably in 2006, the age distribution of the catch indicates that this increase in relative abundance is due almost entirely to a single strong year class. The age structure is not consistent with a strong, resilient walleye population, the type of age distribution observed in the North Channel during the 1990s. Without strong recruitment of subsequent year classes, the increased abundance of walleye in the North Channel is likely to be short lived.

RECOMMENDATION: No Change

Yellow Perch - Overall

The abundance of yellow perch is up in both the North Channel and main basin of the Lake Huron, although harvest continues to be down in QMA 6-1 due to the absence of targeted fishing effort. While the harvest of yellow perch in QMA 4-5 is up from those reported between 2003 and 2005, those were the lowest harvest levels ever reported from this part of the lake. The 2006 harvest (approximately 100 000 kg) was substantially lower than the harvest reported throughout the 1980s and early 1990s when harvest regularly exceeded 200 000 kg per year.

Although there have been reports of yellow perch populations recovering throughout the lake (as the 2003 year class recruits to commercial and assessment gear), the abundance of yellow perch outside of the North Channel and southern Main Basin continues to be extremely low relative to historical levels. In fact, there has been virtually no commercial harvest of yellow perch in any part of Georgian Bay since the early 1990s.

The increased harvest of yellow perch in QMA 4-5 is a direct reflection of the strength of the 2003 year class. The strength of this year class has been well documented in index gear since 2004. Unfortunately, there is little evidence of subsequent year classes, and as a result, harvest is expected to drop sharply after 2008.

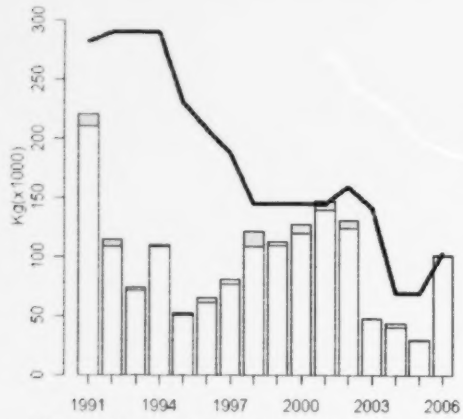

Figure 48. Yellow perch quota (line) and harvest (bars) from management area 4-5.

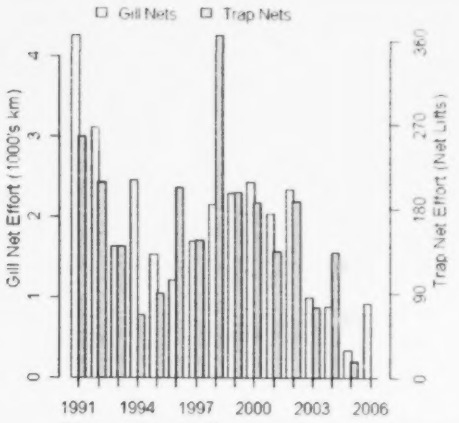

Figure 49. Yellow perch effort for gill nets and trap nets for management area 4-5.

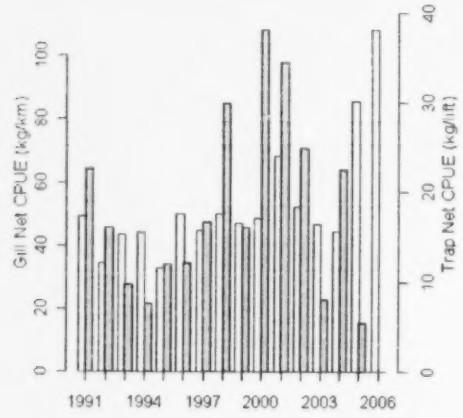

Figure 50. Yellow perch gill net CPUE (kg/km) and trap net CPUE (kg/lift) for management area 4-5.

The harvest of yellow perch is up sharply in 2006 relative to the three preceding years, although total harvest is still lower than the periods between 1998 and 2002, and prior to 1992. Virtually all of the harvest was from gill nets. Only 0.4% of the yellow perch harvest was reported from trap nets. On a zone wide basis, 97% of the allocated quota was harvested.

The CPUE of yellow perch in targeted gill net effort was up for the second year in a row and was higher than any previous year, including those years when harvest was highest. There were no targeted trap net efforts, precluding calculation of targeted CPUE for yellow perch in trap nets.

The age distribution of yellow perch sampled from the commercial catch was dominated by four year old fish and to a lesser extent, three year olds. While fish from three to seven years old were present in the catch, other year classes were extremely rare (less than one percent of the catch). The strength of the 2002 year class is unexpected and inconsistent with data obtained from the independent index netting program. Therefore a sub-sample of the yellow perch collected from the commercial harvest in 2006 have been selected for age verification.

The dominance of one or two extremely young age classes resulted in a very high catch curve mortality estimate based on 2006 data alone (A>85%/year).

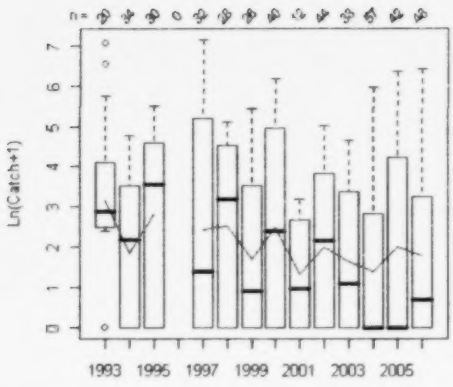

Figure 51. Box-whisker plot of the catch of yellow perch in the OMNR's southern Lake Huron offshore assessment program 1993-2006. The solid line indicates the mean catch.

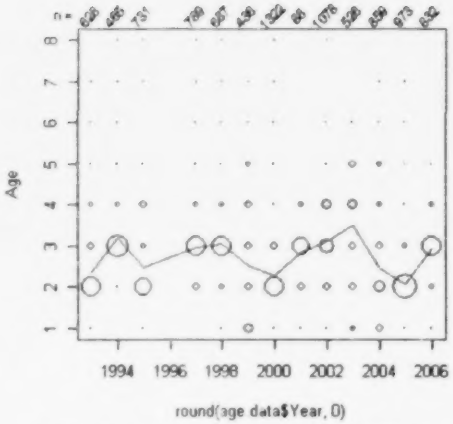

Figure 52. Bubble plot of the age distribution of yellow perch caught in the OMNR's southern Lake Huron offshore assessment program 1993-2006. The size of each bubble is proportional to the contribution of that age to the catch in that year. The solid line indicates the mean age of the catch.

Annual mortality estimates between 2003 and 2005 ranged from 61-67%, values that are still fairly high, but not unusual for yellow perch populations (Henderson and Nepszy, 1989).

The dominance of the 2003 year class is not unexpected. The OMNR's offshore index assessment program has documented the strength of this year class over the past couple of fishing seasons, as have Michigan Department of Natural Resources surveys in U.S. waters. However, the offshore index program has failed to detect any significant recruitment of subsequent year classes. As a consequence, the pre-recruit index values for the 2004 and 2005 year classes are well below the standardized value of 10 (1.64 and 0.00, respectively).

The magnitude of the 2003 year class is not as large as several other year classes in recent history. The 1998 year class had a pre-recruit index value that was almost double the 2003 year class, and the 1994 and 1995 year classes were slightly above, and slightly below that of the 2003 year class. These year classes formed the bulk of the catch in the commercial fishery for several years. However, they entered the fishery in the presence of several other year classes, effectively spreading the fishing mortality over several cohorts. This is not the case with the 2003 year class which appears to be isolated.

Additionally, the overall mean (and median) CPUE for yellow perch in the southern Lake Huron index program is generally lower than the period between 1993 and 2000 (Fig 51) suggesting that yellow perch abundance is not as high as it was a decade ago.

Given the high mortality rates and inconsistent recruitment of yellow perch in recent years, it is expected that the yellow perch fishery in southern Lake Huron will again be depressed by 2009.

Summary and Recommendation

CPUE of yellow perch in gill nets is at an all time high. However, the sudden increase in CPUE is entirely attributable to a single, exceptionally strong year class. In the absence of subsequent recruitment, it is unlikely that the current levels of yellow perch harvest can be sustained for more than a year or two.

RECOMMENDATION: **No Change (100% of BASE)**

Yellow Perch QMA 6-1

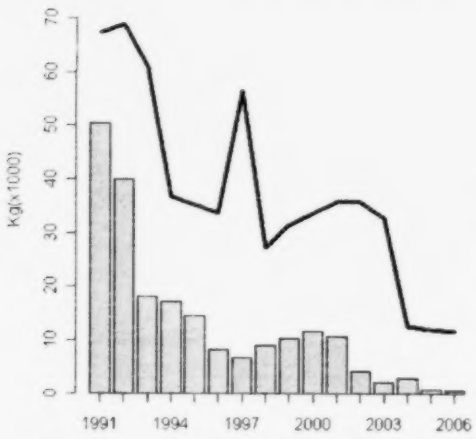

Figure 53. Yellow perch quota (line) and harvest (bars) from management area 6-1.

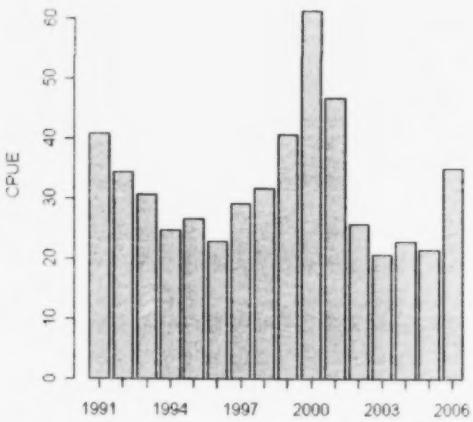

Figure 54. Yellow perch gill net CPUE (kg/km for management area 6-1.

Harvest of yellow perch in QMA 6-1 continues to be depressed. The harvest in 2006 (657 kg) was the lowest harvest observed in the past 27 years. On a zone wide basis, only 5% of the allocated quota was harvested.

Despite the low harvest levels, CPUE for yellow perch was actually up noticeably in 2006 relative to the last four years. While CPUE is not as high as the peak values observed between 1999 and 2001, CPUE is close to the highest values observed outside of that period. It appears as though the low harvest of yellow perch is partially a consequence of low targeted effort rather than just low abundance.

By-catch of non-target species, most notably lake herring, has been identified as one reason why yellow perch effort is down. Other factors include changes in the number of license holders in the QMA and the establishment a small exclusion zone on the north shore.

Onboard catch sampling indicated that the catch ranged in age from two to ten years, with four year old fish dominating. The mean age is down from recent years, but is well within the range typically observed in this QMA.

Catch curve mortality estimates based on the age composition of the catch are extremely high (>70%/year) over the past several years, although the mortality estimate for 2006 alone is considerably lower (A=52.6% year). High total mortality is not uncommon in yellow perch populations (Henderson and Nepszy 1989).

Trends in the CPUE of yellow perch from the OMNR's offshore index assessment program are consistent with the trends reported in the commercial fishery. This continued to be true in 2006 with a mean CPUE that was noticeably higher than the 2002-2004 period. Similarly, the 2002 year class (four year olds in 2006) have been well represented in index catches for the last three years (Figure 56). Younger year classes were also well represented in the 2006 index program. These years classes are expected to recruit to the commercial and recreational fisheries over the next couple of years.

Summary and Recommendation

The drop in the harvest of yellow perch in QMA 6-1 is more likely associated with changes in the dynamics of the fishing fleet and its spatial patterns than to changes in yellow perch abundance. A strong year class has recruited to the fishery but will only sustain it for a couple of years.

RECOMMENDATION: **No Change**

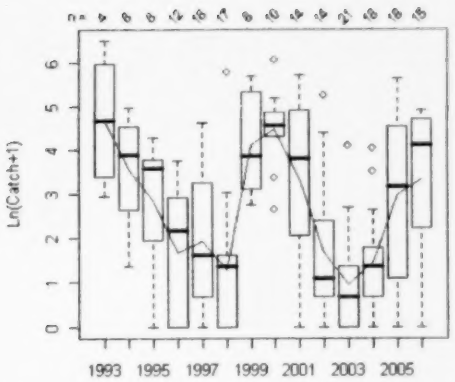

Figure 55. Box-whisker plot of the catch of yellow perch in the OMNR's North Channel offshore assessment program 1993-2006. The solid line indicates the mean catch.

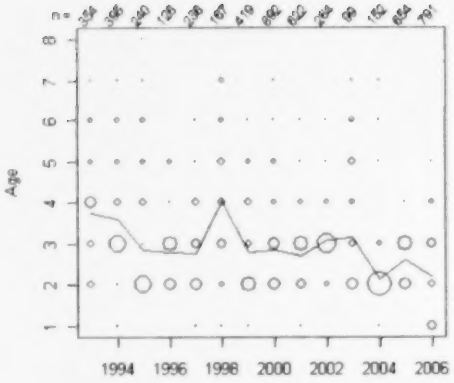

Figure 56. Bubble plot of the age distribution of yellow perch caught in the OMNR's North Channel offshore assessment program 1993-2006. The size of each bubble is proportional to the contribution of that age to the catch in that year. The solid line indicates the mean age of the catch.

Lake Trout - Overall

Harvest of lake trout was down in the main basin of Lake Huron and Georgian Bay, although total lakewide harvest continues to be substantial. Most of the main basin harvest (approximately 60%) continues to come from QMA 4-5, and generally reflects the proportion of lake whitefish that is harvested from the main basin in that QMA. Harvest of lake trout in QMA 4-5 rose sharply between 2002 and 2004. Harvest from most other QMAs has generally fluctuated without trend for the past 10 to 12 years.

The age distribution of lake trout in the commercial catch continues to be dominated by 4, 5 and 6 year old fish, with relatively few older individuals. This is particularly true in the main basin. Independent index netting in other parts of the lake suggest that older lake trout are common in locations where large mesh gillnet fishing is not practiced.

Updated, calculated lake trout quotas were introduced in Georgian Bay and QMA 4-1 in 2006, completing the updating of all lake trout quotas in Lake Huron. The new quotas were implemented to balance the objectives of lake trout rehabilitation and the incidental catch of lake trout in lake whitefish targeted gill net efforts. QMA's 4-4 and 4-7, still do not have new lake trout quotas in place. Work needs to continue to bring these QMA's up to date.

Lake Trout QMA 4-1

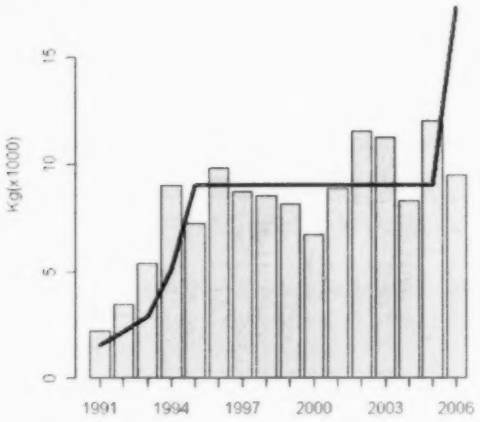

Figure 57. Lake trout quota (line) and harvest (bars) from management area 4-1.

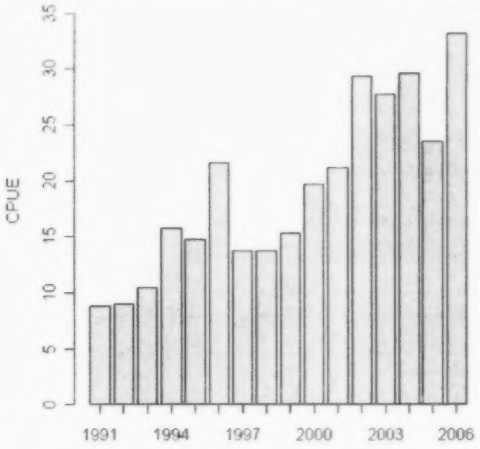

Figure 58. Lake trout gill net CPUE (kg/km for management area 4-1.

Harvest of lake trout was down in this QMA 4-1 in 2006 and is comparable to harvest level reported over the past ten to twelve years. CPUE of lake trout in lake whitefish targeted gill net effort continues to increase. The CPUE in 2006 was the highest reported from this QMA and is consistent with an increasing trend that extends back to the early 1990s. The incidental catch of lake trout in lake whitefish targeted effort has also been increasing but at a slower rate than CPUE.

On a zone wide basis, only 54.6% of the allocated lake trout quota was harvested from this QMA Due mostly to the low targeted effort for lake whitefish in 2006.

Limited onboard catch sampling suggests that the catch was made up predominantly of five, six and seven year old fish. There was insufficient data to estimate mortality from the observed age distribution.

SCAA models that include data from QMA 4-1 and Michigan assessment area MH-1 suggest that abundance and biomass remains unchanged from 2005, but that the spawning biomass has declined. The decline in spawning biomass could have resulted from a change in maturity rates (i.e. fish are maturing at older ages) or an increased proportion of young fish that have not yet reached spawning age.

Harvest projections based on the SCAA models and maximum target mortality rates for rehabilitating lake trout populations suggest that the current exploitation rate is close to 30% too high. A maximum mortality rate of 40% is used by the UGLMU for QMAs in the vicinity of Lake Trout Rehabilitation Zones to allow the establishment of sufficiently large spawning stocks.

No lake trout have been stocked by OMNR in this QMA or the western end of the North Channel. Most of the lake trout harvested in this QMA come from USFWS stocking in the Northern Refuge, located to the south of Drummond Island. Continued stocking in the Northern Refuge will result in relatively high incidental catch of lake trout in this QMA for the foreseeable future.

Summary and Recommendation

Although the issued quota was not completely filled in QMA 4-1, harvest of lake trout continues to be almost 30% too high. While the biomass of lake trout in this QMA remains stable, total mortality is high enough to impede lake trout rehabilitation. With no stocking in Canadian waters (recruitment) or signs of natural reproduction, exploitation needs to be limited.

RECOMMENDATION: -10%

Lake Trout QMA 4-2

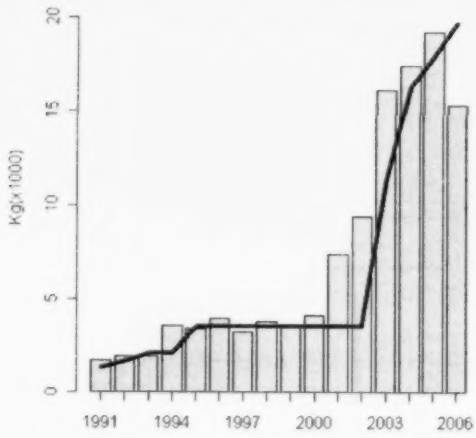

Figure 59. Lake trout quota (line) and harvest (bars) from management area 4-2.

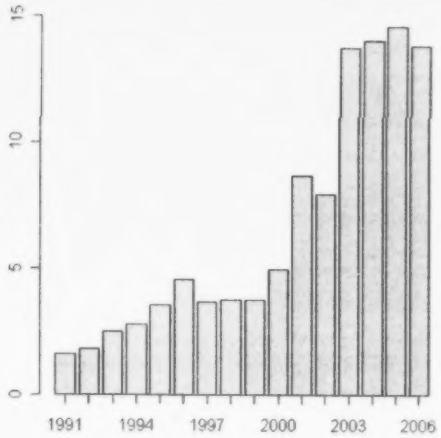

Figure 60. Lake trout gill net CPUE (kg/km for management area 4-2.

Harvest of lake trout in QMA 4-2 was down slightly from 2005, but was still significantly higher than the harvest levels reported prior to 2002. All of the harvest in 2006 was from gill net gear. On a zone wide basis, 77.6% of the issued quota was harvested. This is the first time in ten years that the lake trout quota was not exceeded in this QMA.

Like harvest, CPUE of lake trout in lake whitefish targeted effort continues to be high. The CPUE reported for 2006 is comparable to that from 2003-2005, and is close to three times higher than the CPUE values observed before 2000. Paradoxically, the incidental catch rate of lake trout in lake whitefish targeted effort declined in 2006 and is now close to the levels observed prior to 2003. The change in the reported ICR rate may reflect changes in the fishery, either spatially or temporally, or changes in the activity levels of various license holders. On a zone wide basis, the incidental catch rate of lake trout in whitefish targeted effort is buffered by the trap net fishery.

SCAA modeling based on data from QMAs 4-2, 4-3, 4-7 and Michigan assessment area MH-2 suggest that the abundance of lake trout has been declining for the past three years, while spawning stock biomass is increasing. An increase in spawning stock biomass can be caused by the growth of mature individuals already in the spawning population, or recruitment of new individuals into the spawning population. Reduced overall abundance suggests that recruitment may be down in recent years.

Total mortality estimates from the SCAA model are down from 2005 and are comparable to values observed since 2000. Onboard catch sampling indicated that there were six different age classes in the catch in 2006, with five, six and seven year old fish being the most common. The mean age of the catch was 6.05 years, up slightly from recent years. The mean age of lake trout in the catch from this QMA has typically fluctuated between 4.5 and 5.5 years since the early 1990s.

No lake trout have been stocked by OMNR in this QMA, however an average of 143 000 yearling lake trout have been stocked in QMA 4-3 since 1996. These lake trout, along with lake trout stocked by USFWS in the Northern Refuge and offshore reefs are often harvested in this QMA. Continued stocking will result in relatively high incidental catch of lake trout in this QMA for the foreseeable future.

Summary and Recommendation

Harvest of lake trout continues to be noticeably higher than anytime prior to 2002. Catch at age models suggest that spawning stock biomass has increased in recent years and the age distribution of the catch is relatively broad. On a zone wide basis, harvest of lake trout is buffered in this QMA by the presence of the trap net fishery.

RECOMMENDATION: **No Change**

Lake Trout QMA 4-3

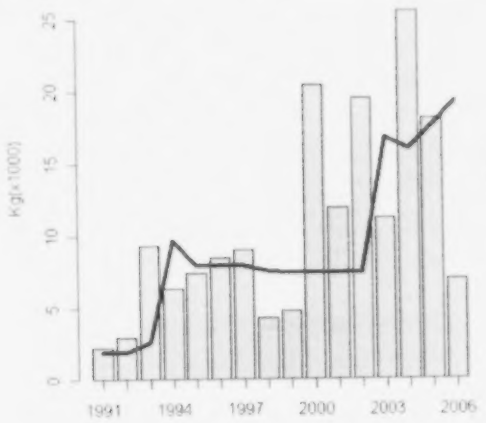

Figure 61. Lake trout quota (line) and harvest (bars) from management area 4-3.

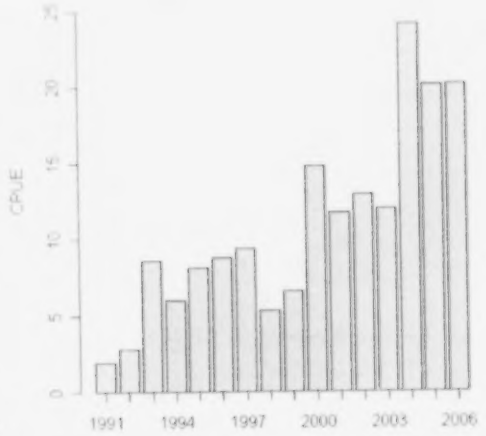

Figure 62. Lake trout gill net CPUE (kg/km for management area 4-3.

Harvest of lake trout in QMA 4-3 was down noticeably from 2005 and was only 27.3% of the peak harvest that occurred in 2004. On a zone wide basis, only 36.2% of the allocated quota was harvested. Similarly, 27.8% of the lake whitefish quota was harvested from this QMA. The harvest of lake trout in this QMA in 2006 was comparable to the harvest levels observed in this QMA prior to 2000.

The CPUE of lake trout in lake whitefish targeted effort was unchanged from the previous year and is much higher than the period prior to 2003. The incidental catch rate of lake trout in lake whitefish effort is still relatively high compared to other areas around the lake, but is below the peak ICR of 25% that occurred in 2003. There is a noticeable difference in the ICR reported by different participants in the fishery in this QMA. At least part of the difference may be explained by differences in the spatial or temporal patterns of fishing.

Unfortunately, there were no onboard catch samples collected from this QMA in 2006, precluding a discussion of the age distribution of the catch or the calculation of catch curve mortality estimates.

SCAA models that combine data from QMAs 4-2, 4-3, 4-7 and Michigan assessment area MH-2 suggest that abundance, and to a lesser extent total biomass, of lake trout in this QMA is down over the last three years, but spawning stock biomass has increased. Similarly, estimates of total mortality have remained stable since 2000, and are just below the mortality thresholds used by the UGLMU for QMAs with rehabilitating lake trout stocks.

Projection models based on the results of the SCAA models and threshold mortality estimates used by UGLMU suggest that the current quota in this QMA is very close to the maximum harvest levels that would still allow the establishment of a sufficiently large spawning stock. However, if the ICR remains high, it is unlikely the lake whitefish quota will be achieved before all of the available lake trout quota has been harvested.

With the exception of 1980, part of this QMA has been stocked annually with pure strain lake trout since 1977. Between 1996 and 2006, an average of 143 000 lake trout were stocked annually in this QMA. Most of this stocking is associated with the Bruce Archipelago LTRZ, but stocking events in the Northern Refuge, Six Fathom Bank and South Bay are also likely to influence catches in this QMA. Continued stocking will result in relatively high incidental catch of lake trout in this QMA for the foreseeable future.

Summary and Recommendation

Only 36% of the allocated quota was harvested in 2006. This is consistent with the harvest of lake whitefish which is also down substantially from 2006. Estimates of total mortality are consistent with lake trout rehabilitation objectives but the incidental catch of lake trout continues to be an issue in this QMA. Given the current lake trout quota and ICR, it is likely that the lake trout quota will be achieved before all of the available lake whitefish quota has been harvested.

RECOMMENDATION: No Change

Lake Trout QMA 4-4

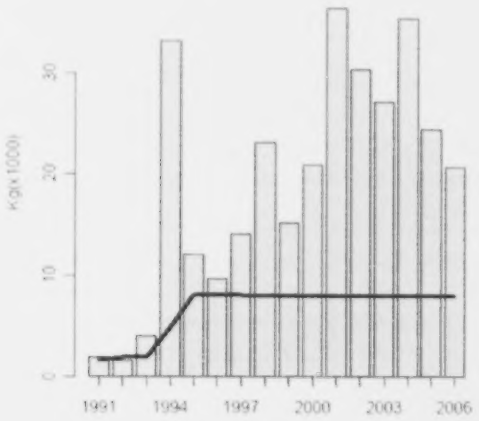

Figure 63. Lake trout quota (line) and harvest (bars) from management area 4-4.

The harvest of lake trout in QMA 4-4 was down in 2006 for the third year in a row. The harvest of lake trout is still higher than most years prior to 2000.

The incidental catch of lake trout in lake whitefish targeted effort is slowly increasing in this QMA, but continues to be lower than many other parts of the lake.

Unfortunately, no age structures are available from lake trout in this QMA, precluding discussion regarding the age distribution of the catch or the calculation of catch curve mortality estimates.

SCAA modeling based on data from QMAs 4-4, 4-5 and Michigan assessment area MH-345, suggests that abundance and biomass of lake trout in the southern half of the main basin has been declining since 2001. Additionally, projection models, which incorporate the results of the SCAA models and apply target mortality rates suggest that the harvest of lake trout in the southern half of the main basin is too high (more than two times too high) and will prohibit the establishment of a sufficiently large spawning stock required for lake trout rehabilitation.

OMNR's offshore index assessment data indicates that the abundance of lake trout has been increasing over the same time period, at least in the vicinity of Southampton (Figure 64). The increasing abundance (i.e. mean CPUE in standardized index gear) is a result of both strong recruitment of younger age classes and the persistence of older fish in the catch.

The proportion of unclipped, and potentially wild lake trout observed in the catch of the offshore index program in this QMA has also increased steadily over the past several years. Since 2002, more than 19% of the lake trout sampled in this program have been unclipped (n = 91/479).

Lake trout are stocked in the southern half of this QMA in association with the Point Clark LTRZ (LTRZ 11). Fish stocked in the Bruce Archipelago by the MNR and several offshore reefs by US agencies frequently appear in the catch in this QMA as well. Between 1996 and 2006, an average of 260 000 lake trout were stocked annually in the vicinity of Point Clark.

Summary and Recommendation

Lake trout quota has not yet been updated in this QMA. It is clear however that the harvest of lake trout in this QMA is higher than desired, especially in light of the number of unclipped fish being observed in recent years. If harvest increases in this QMA, rehabilitation efforts will be hindered.

RECOMMENDATION: Implement production lake trout quota

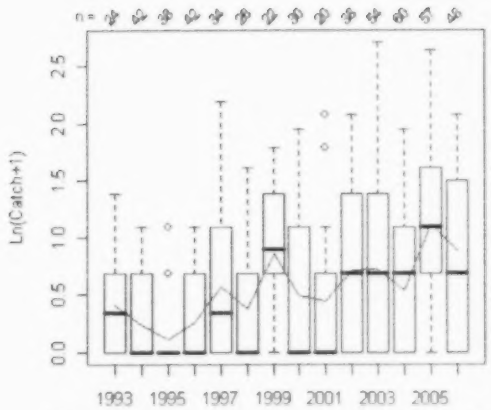

Figure 64. Box-whisker plot of the catch of lake trout in the OMNR's central Lake Huron offshore assessment program 1993-2006. The solid line indicates the mean catch.

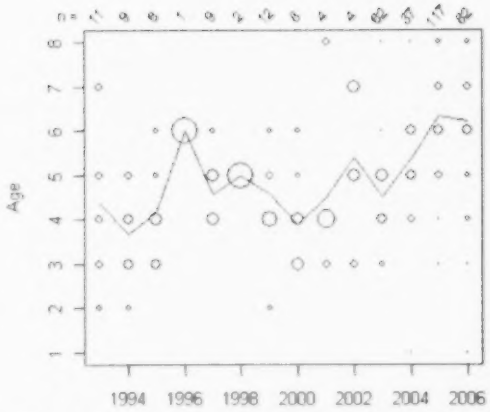

Figure 65. Bubble plot of the age distribution of lake trout caught in the OMNR's central Lake Huron offshore assessment program 1993-2006. The size of each bubble is proportional to the contribution of that age to the catch in that year. The solid line indicates the mean age of the catch.

Lake Trout QMA 4-5

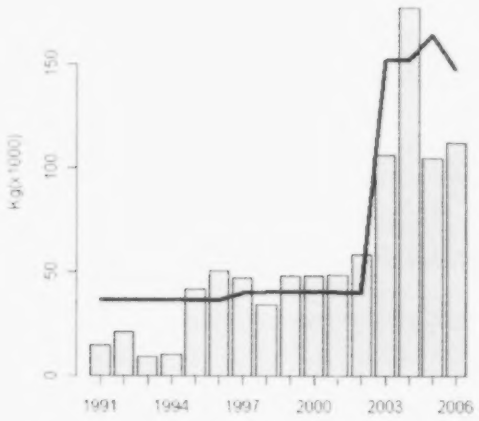

Figure 66. Lake trout quota (line) and harvest (bars) from management area 4-5.

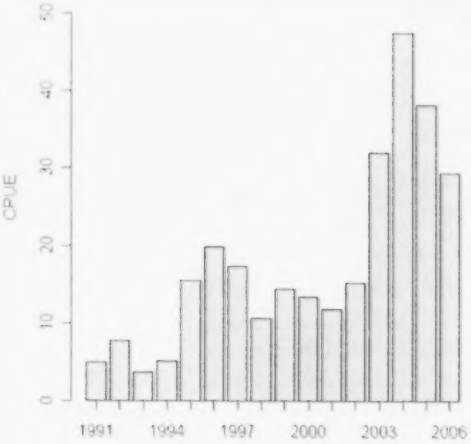

Figure 67. Lake trout gill net CPUE (kg/km for management area 4-5.

Harvest of lake trout in QMA 4-5 was up slightly from 2005, but was well below the peak harvest level reported in 2004. On a zone wide basis, 76.1% of the issued lake trout quota was harvested, more than 96% of which was from the gill net fishery.

The CPUE of lake trout in lake whitefish targeted gill net effort is down from both 2004 and 2005, but is still two to three times higher than reported prior to 2002.

SCAA modeling based on data from QMAs 4-4, 4-5 and Michigan assessment area MH-345, suggests that abundance and biomass of lake trout in the southern half of the main basin has been declining since 2001. Additionally, projection models, which incorporate the results of the SCAA models and apply target mortality rates, suggest that the harvest of lake trout in the southern half of the main basin are too high (more than two times to high) and will prohibit the establishment of a sufficiently large spawning stock required for lake trout rehabilitation.

OMNRs offshore assessment data also suggests that the abundance of lake trout is down in recent years relative to the peak that occurred in 2000 and 2001. The number of age classes and mean age of the catch from the index program has been generally increasing over that same time period (Figure 69).

Currently, there is little evidence in the index program of natural reproduction by lake trout in this QMA. Since 2002, the percentage of unclipped lake trout in the catch has ranged from 3.3 to 7.7% (22 unclipped lake trout in 429 sampled fish).

The onboard catch sampling program indicates that the catch ranged in age from five to 14, with six and seven year old fish being the most common. The mean age of the catch was up slightly in 2006 (6.7 years) from 6.1 and 6.0 in 2004 and 2005, respectively.

Stocking of lake trout in this QMA is limited to the northern most grids and is associated with the Point Clark LTRZ. A large part of the catch also comes from stocking activities on the US side of the border. Lake trout stocking at Point Clark has been occurring since 1992 and between 1996 and 2006, an average of 260 000 lake trout have been stocked annually into the waters in this LTRZ.

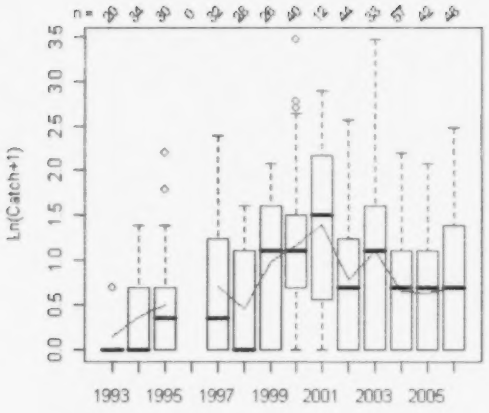

Figure 68. Box-whisker plot of the catch of lake trout in the OMNR's southern Lake Huron offshore assessment program 1993-2006. The solid line indicates the mean catch.

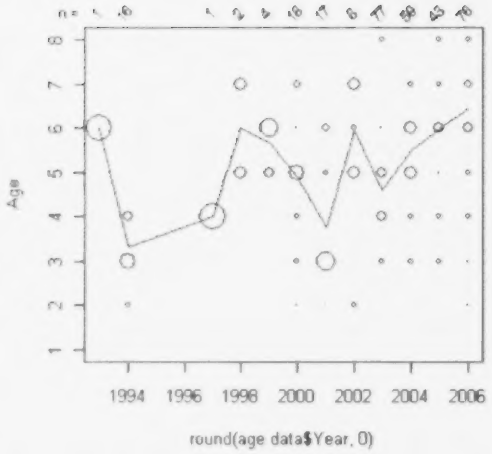

Figure 69. Bubble plot of the age distribution of lake trout caught in the OMNR's southern Lake Huron offshore assessment program 1993-2006. The size of each bubble is proportional to the contribution of that age to the catch in that year. The solid line indicates the mean age of the catch.

Summary and Recommendation

Lake trout quota in this QMA currently exceeds the recommended harvest levels (give the target mortality rates), potentially prohibiting the establishment of a sufficiently large spawning stock. Additionally, lake trout quota is not limiting the harvest of other commercially important species.

RECOMMENDATION: -10%

Lake Trout QMA 4-7

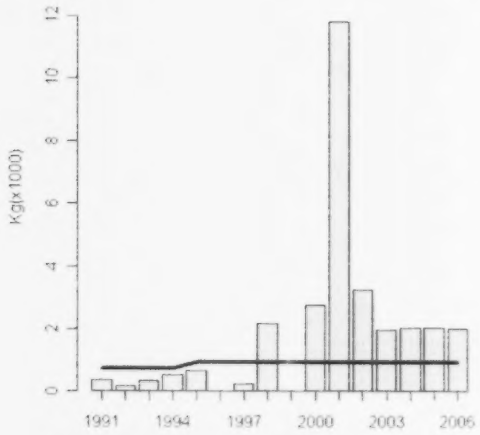

Figure 70. Lake trout quota (line) and harvest (bars) from management area 4-7.

The reported harvest of lake trout from QMA 4-7 was down slightly from 2005. Harvest is largely unchanged over the past four years, and is substantially lower than the peak reported harvest from 2001 (11 786 kg).

CPUE of lake trout in this QMA is generally high, although the amount of effort expended in this QMA has been inconsistent in recent years. The inconsistency in the fishery make it difficult to interpret trends.

No lake trout age structures were collected from this QMA in 2006, precluding a discussion of age distribution of the catch or the calculation of catch curve mortality estimates.

SCAA models that combine data from QMAs 4-2, 4-3, 4-7 and Michigan assessment area MH-2 suggest that abundance, and to a lesser extent total biomass, of lake trout in this QMA are down over the last three years, but spawning stock biomass has remained stable. Similarly, estimates of total mortality have remained stable since 2000, and are just below the mortality thresholds used by the UGLMU for QMAs with rehabilitating lake trout stocks.

Projection models based on the results of the SCAA models and threshold mortality estimates used by UGLMU suggest that the current quota in this QMA is very close to the maximum harvest levels that would still allow the establishment of a sufficiently large spawning stock.

Part of LTRZ 13 (the Bruce Archipelago) lies in the north east corner of this QMA. Stocking in this QMA has continued since 1988, and between 1996 and 2006, and average of 300 000 lake trout were stocked annually in this LTRZ. Other stocking events, most notably stocking activity on offshore reefs are also likely to influence catches in this QMA.

Summary and Recommendation

Like QMA 4-4, this QMA has not been allocated production lake trout quota. The projection models suggest that a small increase in harvest will not jeopardize the existing lake trout spawning stock. It is recommended that the lake trout quota in this QMA be increased to 3 500 kg as a first step in modernizing the lake trout management in this QMA.

RECOMMENDATION: Implement production lake trout quota.

Lake Trout QMA 5-1

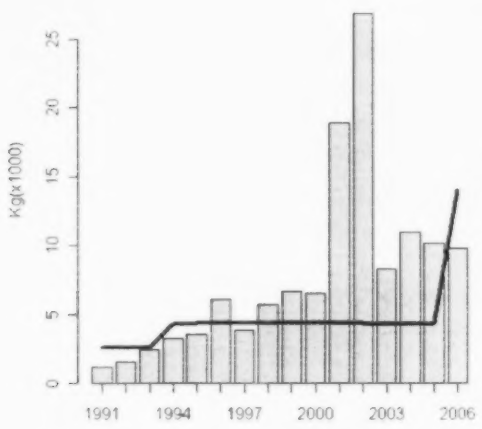

Figure 71. Lake trout quota (line) and harvest (bars) from management area 5-1.

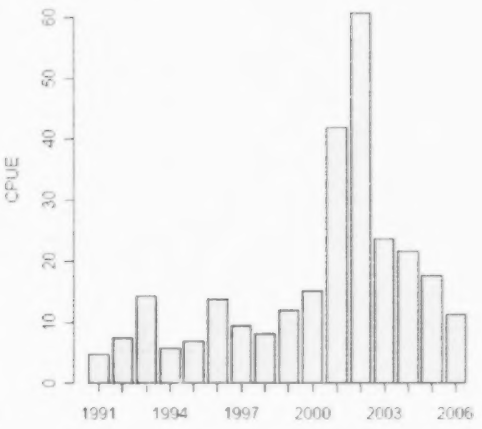

Figure 72. Lake trout gill net CPUE (kg/km for management area 5-1.

The harvest of lake trout in QMA 5-1 was down slightly from 2005 and is substantially lower than the peak harvest that occurred in 2001 and 2002. On a zone-wide basis, 70% of the issued quota was harvested. The CPUE of lake trout in lake whitefish targeted gill nets was down in 2006 for the fourth year in a row and is now comparable to the CPUE estimates observed prior to 2000. Similarly, the incidental catch rates (both observed and reported) in lake whitefish targeted gill net effort are down in 2006 relative to previous years. The lower ICR suggests that the abundance of lake trout in this QMA could be low relative to other QMAs or that the fishery was able to target lake whitefish when they were spatially segregated from lake trout.

Stocking of lake trout in this QMA has been sporadic over the past several years. Most of the stocking in the vicinity of this QMA is in association with LTRZs on Grand Bank and in Fraser Bay. Between 1992 and 2001, 90 000 lake trout were stocked in QMA 5-1.

The age distribution of the catch in 2006 consisted of seven different age classes from 3 to 9 years. Six and seven year old lake trout were particularly well represented in the catch. The mean age of lake trout in this QMA (6.11 years) continues to increase as older fish from earlier plantings continue to be present in the catch.

The catch curve mortality estimate for lake trout from this QMA was 58.7%, considerably higher than the target mortality rate for lake trout of 40%. At least part of the inflated mortality estimate is attributable to the strength of relatively old age classes in the catch (e.g. six and seven year old fish).

Catch at age models suggest that the abundance of lake trout in this QMA is stable and that the Spawning Potential Reduction associated with the current level of exploitation is consistent with lake trout rehabilitation efforts.

Summary and Recommendation

Harvest of lake trout in QMA 5-1 was down in 2006. The age distribution of the catch is broad and the mean age has been increasing steadily suggesting that total annual mortality is not likely excessive. However, catch curve mortality estimates are considerably higher than the target mortality for lake trout.

RECOMMENDATION: **No Change**

Lake Trout QMA 5-2

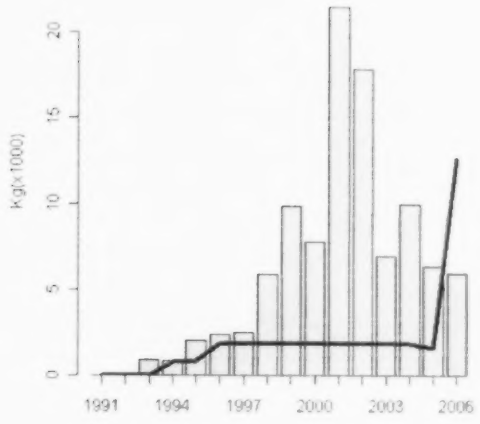

Figure 73. Lake trout quota (line) and harvest (bars) from management area 5-2.

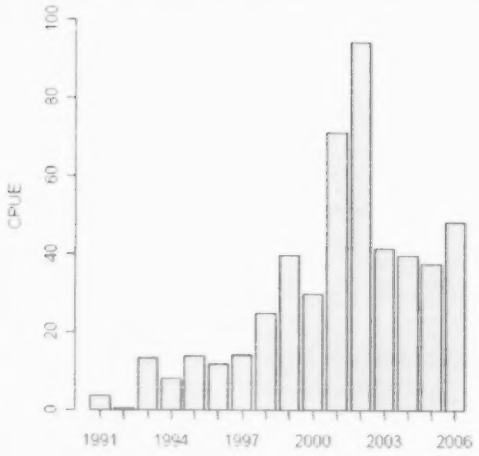

Figure 74. Lake trout gill net CPUE (kg/km for management area 5-2.

Harvest of lake trout in QMA 5-2 in 2006 was down slightly relative to 2005, and is substantially lower than the peak harvest that occurred in 2001 and 2002. In fact, the harvest in 2006 is among the lowest observed since 1998. On a zone wide basis, 46.9% of the issued quota was harvested.

The CPUE of lake trout in lake whitefish targeted gill net efforts rose slightly in 2006 and was higher than the three preceding years. The reported incidental catch rate of lake trout in lake whitefish targeted efforts in this QMA continues to be among the highest on the lake suggesting that lake trout abundance continues to be relatively high in this QMA.

There were no lake trout sampled from the commercial catch from this QMA in 2006. Catch curve estimates generated from previous years data suggest that total mortality is close to the target threshold used by the UGLMU for QMAs with rehabilitating lake trout populations.

Lake trout populations in this QMA are not modeled. As a consequence, several assessment parameters are not available.

There is no active lake trout rehabilitation zone in this QMA and there is currently no lake trout stocking.

Summary and Recommendation

Harvest of lake trout in QMA 5-2 was down, only half of the allocated quota was harvest in 2006. Incidental catch of lake trout continues to be among the highest on the lake. Current lake trout quotas are not likely impeding harvest of other species.

RECOMMENDATION: **No Change**

Lake Trout QMA 5-3

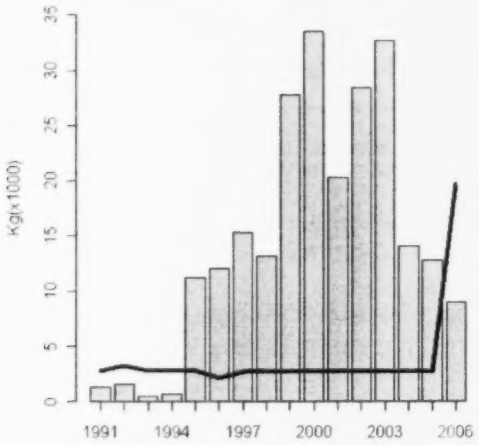

Figure 75.. Lake trout quota (line) and harvest (bars) from management area 5-3.

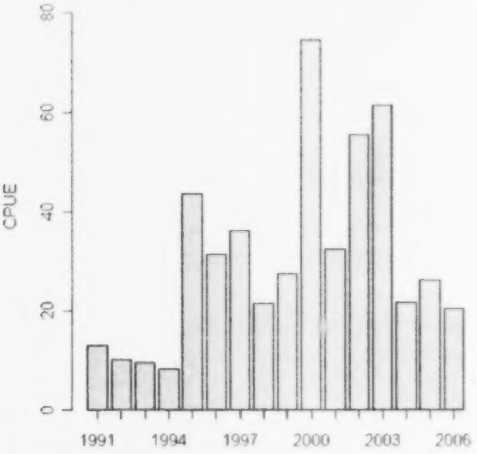

Figure 76. Lake trout gill net CPUE (kg/km for management area 5-3.

Harvest of lake trout was down for the fourth consecutive year in QMA 5-3, and is among the lowest harvests reported since 1995. On a zone wide basis, 45% of the issued quota was harvested. Similarly, the zone wide CPUE for lake trout in lake whitefish targeted efforts is down from 2005, and is also among the lowest observed since 1995. The drop in CPUE is particularly apparent when compared to the peak values that were reported in 2000, 2002 and 2003.

The incidental catch of lake trout in lake whitefish targeted efforts in this QMA dropped in 2006, resulting in a lower harvest of lake trout despite an increase in whitefish harvest. The zone wide ICR in this QMA is now similar to the lake wide average, suggesting that lake trout abundance in north west Georgian Bay is comparable to other parts of the lake.

Unfortunately, no catch sample data was collected for 2006, precluding examination of age structure or estimation of total mortality through catch curve analysis.

Stocking in this QMA continues. QMA 5-3 contains, or is adjacent to two lake trout rehabilitation zones, Grand Bank and the Bruce Archipelago. Stocking of lake trout in this QMA between 1996 and 2006 has averaged slightly over 560 000 lake trout per year.

Cohort models based on stocking and age specific mortality from the main basin of Lake Huron, suggest that the abundance of lake trout in this part of Georgian Bay may have peaked in 2005 and is starting to slowly decline. The Spawning Potential Reduction (SPR) based on the current level of exploitation remains relatively high and is consistent with lake trout rehabilitation efforts.

Summary and Recommendation

Harvest of lake trout in QMA 5-3 was less than half of the allocated quota. Incidental catch of lake trout continues to be close to the lake wide average. Catch at age models suggest that lake trout biomass is slowly declining in this part of Georgian Bay. Current lake trout quotas are not likely impeding harvest of other species.

RECOMMENDATION: **No Change**

Lake Trout QMA 5-6

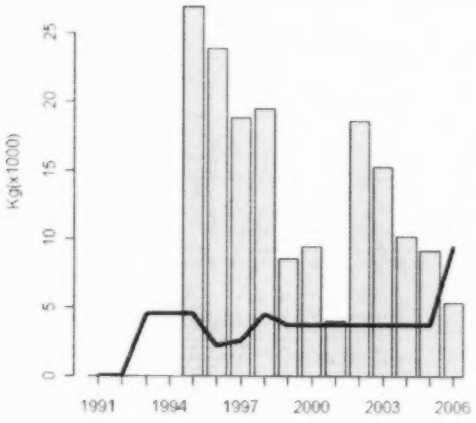

Figure 77. Lake trout quota (line) and harvest (bars) from management area 5-6.

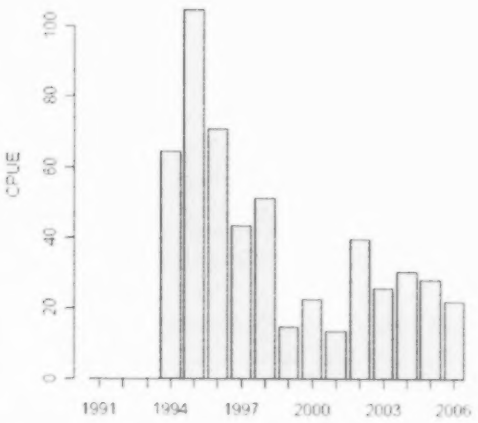

Figure 78. Lake trout gill net CPUE (kg/km for management area 5-6.

Harvest of lake trout in QMA 5-6 was down for the fifth year in a row, and is among the lowest harvest levels observed since 1994. In fact, harvest in 2006 was approximately 80% lower than the harvest reported in 1994. On a zone wide basis, 57 % of the issued quota was harvested. Similarly, the CPUE of lake trout in lake whitefish targeted gill nets is also down relative to recent years and is noticeably lower than the peak CPUE values that occurred between 1994 and 1996. At least part of this drop in lake trout harvest is attributable to a drop in harvest of lake whitefish, which has been noticeably lower over the past three years. Additionally, the incidental catch rate of lake trout in lake whitefish targeted effort continues to drop suggesting that the abundance of lake trout is declining or that the fishery is continuing to avoid lake trout by targeting lake whitefish when they are spatially segregated.

Cohort modeling based on stocking data suggests that the abundance of lake trout in QMA 5-6 is stable or increasing slowly, although the exploitable biomass (the proportion of the population that is vulnerable to commercial gear) has declined in recent years.

Stocking of lake trout in the vicinity of this QMA continues. Between 1996 and 2006, an average of 200 000 lake trout were stocked in LTRZ 10, although none of these fish were stocked directly into QMA 5-6.

Summary and Recommendation

Harvest of lake trout in QMA 5-6 was down substantially in 2006, among the lowest harvests reported from this QMA since 1994. The incidental catch of lake trout is also down in recent years. On a zone-wide basis, just over half of the allocated quota was harvested. In QMA 5-8 (immediately to the south), the catch of stocked fish to index gear has declined noticeably in recent years, suggesting that recruitment of recent year classes to the commercial fishery in Georgian Bay is uncertain.

RECOMMENDATION: No Change

Lake Trout QMA 5-7

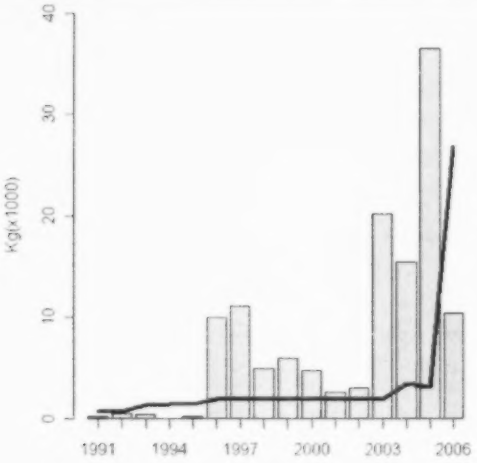

Figure 80. Lake trout quota (line) and harvest (bars) from management area 5-7.

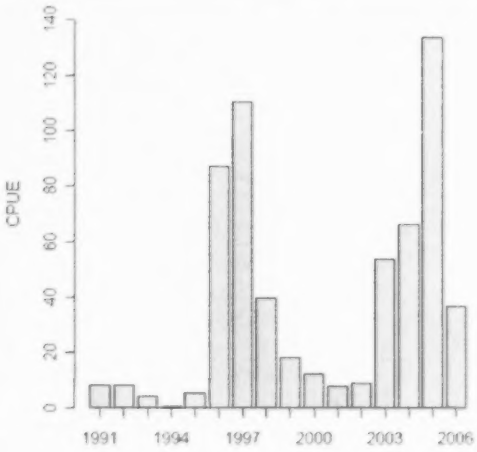

Figure 81. Lake trout gill net CPUE (kg/km for management area 5-7.

Harvest of lake trout in QMA 5-7 in 2006 was 10 442 kg, down from the long term peak harvest of 36 443 kg that occurred the year before. On a zone wide basis, 38.9% of the issued quota was harvested and approximately 28% of the reported catch of lake trout was released. Like harvest, CPUE of lake trout in lake whitefish targeted effort was down substantially from 2005. The incidental catch of lake trout in lake whitefish targeted effort was also down substantially in 2006 relative to recent years. The trends in CPUE, ICR, and to a lesser extent harvest, are strongly influenced by the pulse stocking that is occurring in the LTRZ 7 located in the north central portion of this QMA.

Stocking in LTRZ 8 follows a cyclical pattern of three years of heavy stocking followed by three years without stocking, resulting in periods with higher incidental catch of lake trout when stocked fish are within the size range that is vulnerable to commercial fishing gear. Between 2000 and 2002, an average of approximately 240 000 yearling lake trout were stocked annually. No stocking occurred between 2003 and 2005.

The age distribution of lake trout sampled from the commercial catch in QMA 5-7 was comprised of six different age classes, with six and seven year old fish being particularly well represented.

Catch curve mortality estimates from fish sampled in the catch over the last three years have ranged from 35.5% to 43.9%. These mortality rates are within, or slightly higher than the target mortality rates used by the UGLMU for QMAs with rehabilitation lake trout populations.

Catch at age modeling based on catch and stocking data suggest that the population numbers/biomass peaked in 2006 and are expected to decline sharply in subsequent years. The decline is mostly attributable to a drop in recruitment to the commercial gear as a consequence of pulse stocking, but commercial exploitation is also a concern. The recommended yield limit estimated by the stock status models, which incorporate the target mortality rates, population growth and number of mortality sources indicate that the current quota is two to five times higher than recommended to establish and rebuild a self sustaining lake trout population.

Summary and Recommendation

Harvest of lake trout in QMA 5-7 was approximately one third of the 2005 harvest. This drop is partially explained by the pulse stocking in this QMA. Mortality estimates are slightly above the thresholds used for QMAs that contain LTRZs. Catch at age models suggest that current exploitation rates are two to five times higher than required for lake trout rehabilitation.

RECOMMENDATION: -20%

Lake Trout QMA 5-8

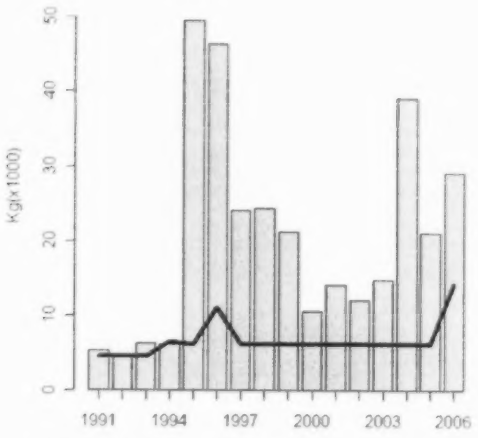

Figure 82. Lake trout quota (line) and harvest (bars) from management area 5-8.

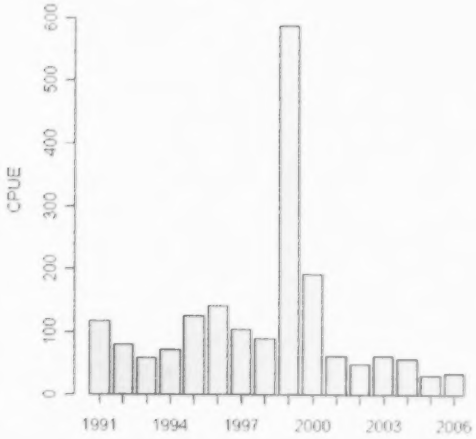

Figure 83. Lake trout gill net CPUE (kg/km for management area 5-8.

Harvest of lake trout in QMA 5-8 was up in 2006 and is consistent with an increasing trend in harvest that started in 2000, although the total harvest is still well below the peak harvest levels that were observed in 1995 and 1996. Despite an increase in quota in 2006, 204.3% of the issued quota was harvested by the fishery in QMA 5-8. The reported CPUE is unchanged from 2005 and is well below the peak that occurred in 1999, and to a lesser extent 2000. However, the incidental catch of lake trout in lake whitefish targeted effort in QMA 5-8 continues to be a concern and is higher than most parts of the lake. This is partially reflected in the similarity of the trends in harvest of lake whitefish and lake trout in recent years.

Unfortunately, catch-at-age data was unavailable for this QMA in 2005 and 2006, but the most recent catch data suggests that total annual mortality (55.2 % in 2004) is higher than the targets used by the UGLMU to manage lake trout, especially in the vicinity of lake trout rehabilitation zones.

Excessive mortality is also consistent with trends in lake trout abundance that have been observed in the UGMLU offshore index assessment program (Figure 84). The assessment survey conducted in this QMA has shown a steady decline in the catch of lake trout, starting as far back as 1993, but is most pronounced in recent years.

Stocking of lake trout continues in this QMA, associated with lake trout rehabilitation zones 9 and 10 (Nottawasaga Bay and western Georgian Bay). Pure strain lake trout have been stocked in this QMA since 1986. Between 1996 and 2006, an average of 330 000 lake trout have been stocked in QMA 5-8. Since the 2002 year class, recruitment of these stocked lake trout to assessment gear has been weak (Figure 84), suggesting that recruitment to the commercial fishery is likely to decline in the upcoming years.

Catch at age modeling also suggests that the abundance of lake trout in this QMA will continue to decline following the peak that occurred in 2002 and 2003.

Summary and Recommendation

Harvest of lake trout in QMA 5-8 was up and has generally been increasing over the past six or seven years. On a zone wide basis, more than two times the allocated lake trout quota was harvested. Total annual mortality is high. Mean CPUE of lake trout in index nets has been dropping steadily since the mid 1990s and the absence of younger age classes in recent years suggests that recruitment to the fishery in the upcoming years is uncertain

RECOMMENDATION: -10%

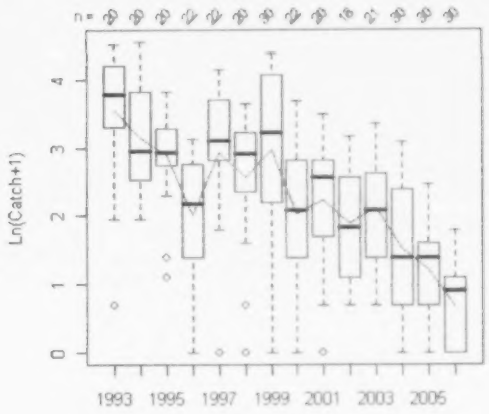

Figure 84. Box-whisker plot of the catch of lake trout in the OMNR's southern Georgian Bay offshore assessment program 1993-2006. The solid line indicates the mean catch.

Lake Trout QMA 5-9

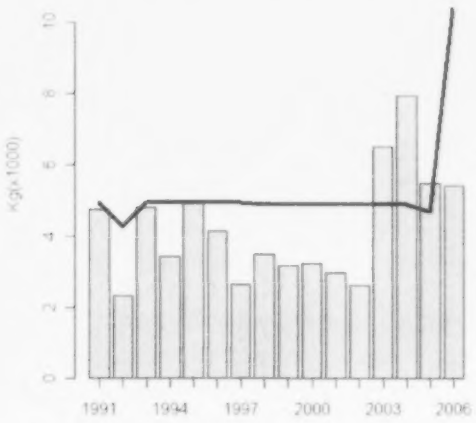

Figure 85. Lake trout quota (line) and harvest (bars) from management area 5-9.

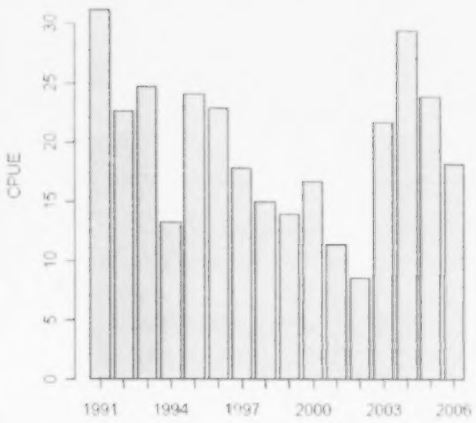

Figure 86. Lake trout gill net CPUE (kg/km for management area 5-9.

Harvest of lake trout in QMA 5-9 was unchanged from 2005 and is down from the peak value reported in 2004. Harvest continues to be above the average levels that were reported between 1991 and 2002. The CPUE of lake trout in lake whitefish targeted effort is down for the third year in a row, but like harvest, is noticeably higher than reported during the late 1990s.

The incidental catch of lake trout in lake whitefish targeted effort is also down in this QMA and is comparable to the low levels observed prior to 2004.

The age distribution of the catch is limited to only four age classes with fish between five and seven years of age forming the bulk of the catch. A low number of age classes is not uncommon in the catch from this QMA, which since 2000, has typically consisted of between three and seven different ages. Despite the low number of age classes in the catch, the mean age has been steadily and consistently increasing over that same time period. Since 2003, the mean age has risen from 4.22 to 6.07 in 2006 The increase in mean age is at least partially explained by the strength of the 1999 year class, which continues to be in the fishery.

Catch curve mortality estimates based on the observed age distribution suggest that total mortality of lake trout in this QMA continues to decline, although catch at age modeling indicates that abundance of lake trout in this QMA is also declining after peaking between 2002 and 2003.

Stocking of lake trout continues in this QMA, associated with LTRZ 9 (Nottawasaga Bay). The first stocking of pure strain lake trout e in this QMA occurred in 1996. Between 1996 and 2006, an average of almost 95 000 lake trout have been stocked in QMA 5-9. There is no evidence of recruitment of year classes after 2002 in this QMA, suggesting that like QMA 5-8, the strength of subsequent year classes may be low.

Summary and Recommendation

Harvest of lake trout in QMA 5-9 was down from peak levels, but still noticeably higher than during the late 1990s. On a zone wide basis, approximately half of the allocated lake trout quota was harvest in 2006. Current lake trout quotas are not impeding harvest of other species.

RECOMMENDATION: No Change

Lake Trout QMA 6-1

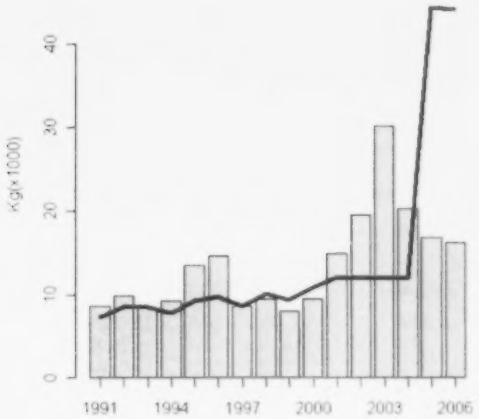

Figure 87. Lake trout quota (line) and harvest (bars) from management area 6-1.

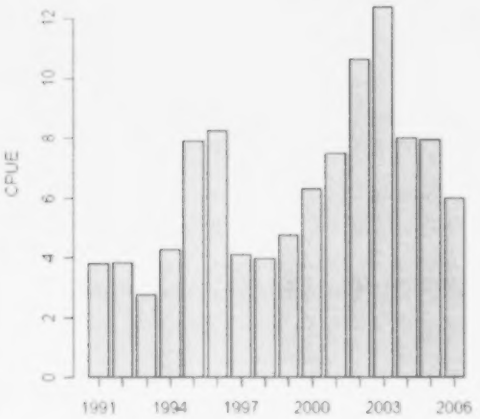

Figure 88. Lake trout gill net CPUE (kg/km for management area 6-1.

Harvest of lake trout from QMA 6-1 was down slightly from 2005 and is down for the third year in a row. The harvest in 2005 was just over half of the reported harvest from 2003. As a consequence, only 36.9% of the allocated quota in this QMA was harvested in 2006.

The CPUE of lake trout in lake whitefish targeted effort was also down in 2006 and is comparable to CPUE estimates observed prior to 2000. Similarly, the ICR of lake trout in lake whitefish efforts was down from the peak values reported in 2003. The ICR in this QMA is now lower than other parts of the lake.

Onboard catch sampling suggested that the catch of lake trout in QMA 6-1 was dominated by four year olds, and to a lesser extent seven year old fish. The seven year olds, the 1999 year class, have consistently appeared in the commercial catch since 2002. The ages in the catch ranged from two to nine and the mean age was down slightly relative to 2005. Compared to other QMAs, the mean age of lake trout in the commercial catch is fairly low (5.5 years, versus 6 to 7 years in most other parts of the lake).

Catch curve mortality estimates (A=46%) are down from 2005, but still above the threshold used by the UGLMU for rehabilitating lake trout populations (<40%).

Cohort modeling based on stocking data and mortality rates from the northern main basin, suggests that the abundance of lake trout is expected to increase slightly over the next few years, although the adult biomass may begin to decline. Projection models based on the output from SCAA models and target mortality rates suggest that current quota levels are too high and may prohibit the establishment of a sufficiently large spawning stock.

Stocking of lake trout continues in the North Channel. The QMA 6-1 contains, or is adjacent to 2 LTRZs. All lake trout stocking in QMA 6-1 is associated with LTRZ 2 (eastern North Channel). Between 1996 and 2006, an average of almost 190 000 lake trout were stocked into the waters of the North Channel, mostly in the eastern end of QMA 6-1. It is expected that these fish will continue to recruit to the commercial and recreational fisheries for the next several years.

Summary and Recommendation

Harvest of lake trout in QMA 6-1 was down in 2006 and was slightly more than one third of the allocated lake trout quota. Current lake trout quotas are not likely impeding harvest of other species. Catch curve mortality is above the target used for lake trout, although at least part of this is attributable to high lamprey abundance in the North Channel.

RECOMMENDATION: No Change

Lake Trout QMA 6-3

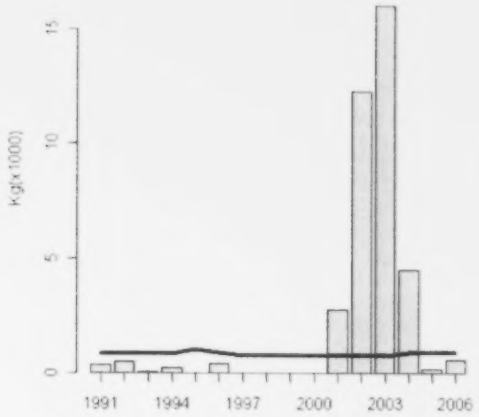

Figure 89. Lake trout quota (line) and harvest (bars) from management area 6-3.

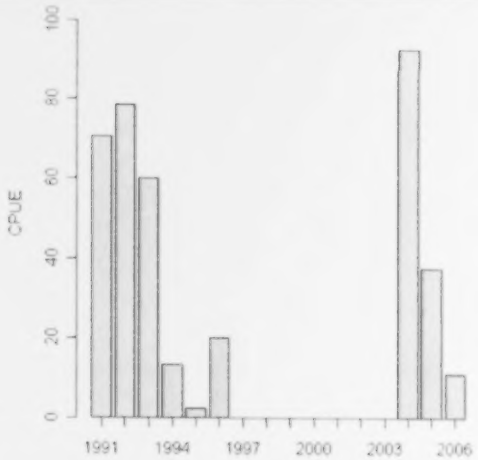

Figure 90. Lake trout gill net CPUE (kg/km for management area 6-3.

The harvest of lake trout in QMA 6-3 was up slightly from 2005 but is well below the peak harvest that occurred between 2001 and 2004. On a zone wide basis, 66.2% of the issued lake trout quota was harvested. The reported CPUE of lake trout in lake whitefish targeted effort was lower in 2006. The incidental catch rate of lake trout in lake whitefish targeted effort in 2006 was close to the lake wide average, although it has averaged over 60% for the past three years.

Unfortunately, there were no samples collected from the commercial harvest of lake trout in QMA 6-3 precluding a discussion of the age distribution of the catch or the calculation of catch curve mortality estimates.

This QMA is in close proximity to a number of LTRZs including Heywood Island and Iroquois Bay. Iroquois Bay has been identified as a high priority zone with a high probability of successfully re-establishing naturally self-sustaining lake trout populations. Stocking in QMA 6-3 has occurred almost continuously since the 1970s. Between 1996 and 2006, an average of 135 000 yearling lake trout have been stocked annually in QMA 6-3.

Cohort models based on stocking data and main basin mortality estimates suggest that the abundance of lake trout is increasing in QMA 6-3. Similarly, models that apply target mortality levels to modeled abundance estimates suggest that the current level of exploitation is below the threshold maximum and is therefore consistent with lake trout rehabilitation objectives.

Unlike other QMAs, 6-3 was never allocated production lake trout quota.

Summary and Recommendation

Harvest of lake trout in QMA 5-3 was up slightly, but still well below the peak of a few year earlier. Two thirds of the lake trout quota was harvested in 2006. Catch at age models suggest that abundance is increasing in this QMA. Unlike other QMAs was never allocated production lake trout quota. It is recommended that 3 000 kg of lake trout quota be allocated to active license holders.

RECOMMENDATION: Implement production lake trout quota, 3000 kg

Lake Herring - Overall

2006 was the first year for lake herring quota on Lake Huron. Initial quota estimates were based on reported incidental catch rates in lake whitefish targeted effort and applied to zone wide whitefish quota.

Although quotas were implemented throughout the lake, most of the harvest occurred in the North Channel. In fact, the harvest of lake herring in the main basin and Georgian Bay are currently at the lowest levels on record. Harvest of lake herring in Georgian Bay has always been relatively low, but the harvest in the main basin has been steadily declining since the late 1980s when ten to twenty thousand kilograms of lake herring were reported every year.

More recently, the harvest of lake herring from the North Channel has increased. Although the harvest has fluctuated from one year to the next, harvest has generally been increasing in this part of the lake since 1995.

Implementation of quotas in 2006 did not appear to impede the commercial fisheries targeting lake whitefish, yellow perch or walleye. Only a couple of fisheries in QMA 6-1 approached their lake herring quotas.

Index netting suggests that the absence of lake herring reported from some parts of the lake reflects a lack of commercial activity rather than an indication of lake herring abundance. This is particularly true along the eastern shore of Georgian Bay were lake herring are frequently encountered in large numbers in assessment programs.

As a native coregonid, lake herring are an important part of the Lake Huron fish community. The re-establishment of healthy lake herring populations throughout Lake Huron are an important consideration for the management of Lake Huron and are likely to be a key factor in the recovery or rehabilitation of indigenous top predators such as lake trout and walleye.

Lake Herring QMA 5-7

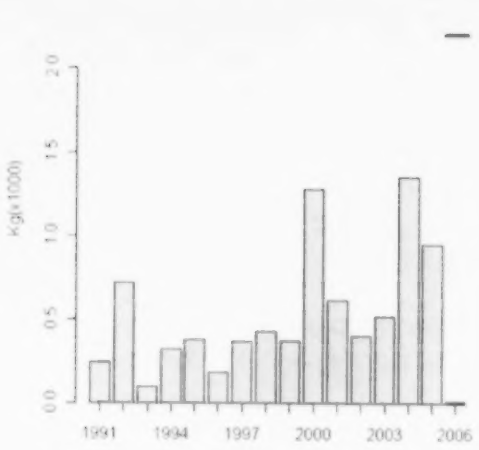

Figure 91. Lake herring quota (line) and harvest (bars) from management area 5-7.

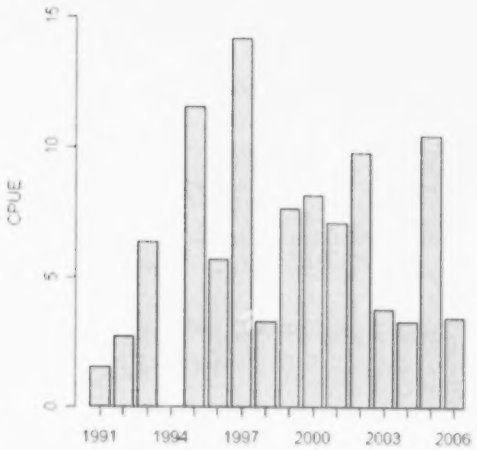

Figure 92. Lake herring gill net CPUE (kg/km) in lake whitefish targeted effort for management area 5-7.

Harvest of lake herring QMA 5-7 was the lowest reported from this QMA in the past 15 years and is noticeably lower than the harvest levels reported in 2004 and 2005, despite and increase in lake whitefish harvest over the same period. Only 0.6% of the issued quota was harvested in 2006.

There were no biological samples collected from the commercial harvest of lake herring in QMA 5-7 in 2006.

Summary and Recommendation

Harvest of lake herring QMA 5-7 was the lowest reported from this QMA in the past 15 years. Only 0.6% of the issued quota was harvested in 2006. Current quotas are obviously in higher than needed to cover the incidental catch of lake herring.

RECOMMENDATION: No Change

Lake Herring QMA 6-1

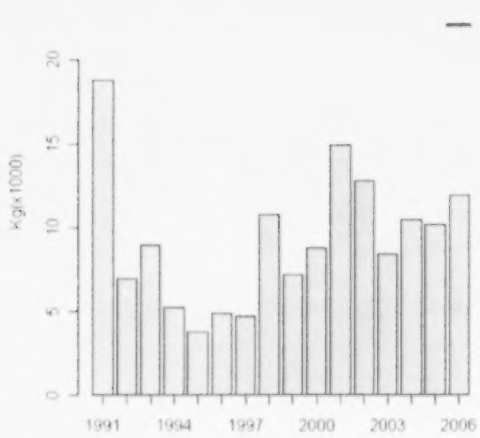

Figure 93. Lake herring quota (line) and harvest (bars) from management area 6-1.

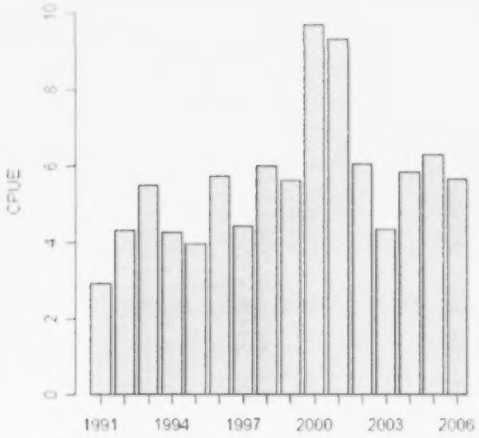

Figure 94. Lake herring gill net CPUE (kg/km) in lake whitefish targeted effort for management area 6-1.

The harvest of lake herring in QMA 6-1was up slightly in 2006 relative to the previous few years, but not as high as the harvest reported in 1991, and 2001-2002.

The CPUE of lake herring in lake whitefish targeted gill net effort was close to the long term average from 1991 to 2006 and is very close the CPUE reported for 2004 and 2005.

Although a couple of fisheries approached their lake herring quota, most of the individual fisheries in the QMA 6-1 were well below their allocation. Overall, 53% of the zone wide quota was harvested.

Ten different age classes were observed in the samples from the commercial catch, with ages between six and nine being particularly well represented. While historical data is limited for lake herring from the North Channel, the mean age of the catch observed in 2006 was within the range observed in the past (the mean age has ranged from 6.08 to 11.00 years).

There was insufficient data to calculate mortality estimates for lake herring in this QMA.

Summary and Recommendation

Harvest of lake herring was up slightly in 2006. Most of the license holders were will below there lake herring quotas. Overall, 53% of the zone wide quota was harvested. Current lake herring quotas are unlikely to be impeding fisheries targeting other species.

RECOMMENDATION: **No Change**

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Appendix A – Stock Evaluation Protocol Forms for Lake Whitefish in Lake Huron for 2006

QMA: 4-1	Status of Stock				
Parameter	← - Risk + →				
	+ Health/Sustainability -				
CPUE Commercial Harvest	Increase over 2 or more consecutive years	**No Trend over 2 consecutive years**	Decline over 2 consecutive years	Decline over 3 consecutive years	Decline over >3 consecutive years
Predicted Recruitment from Independent Index	3 or more strong year classes predicted	1 or 2 strong year classes predicted	average year classes predicted	**1 or 2 weak year classes predicted**	3 + weak year classes predicted
Age Structure of Catch	Multi aged with > 12 year classes	Multi aged with > 10 year classes	Multi aged with > 8 year classes	**Multi aged with ≤ 8 year classes**	Multi aged with ≤ 6 year classes
Mean Age of Catch	Major Positive Change	Minor Positive Change	**No Change**	Minor Negative Change	Major Negative Change
Size at Age	Major Positive Change	Minor Positive Change	**No Change**	Minor Negative Change	Major Negative Change
Age Mature : Mean Age	>=0.6	>=0.7	**>=0.8**	>=0.9	>=1.0
COHORT ANALYSIS					
Total Annual Mortality	<0.45	0.45 to 0.6	0.6 to 0.65	0.65 to 0.70	>0.70
Estimated Exploitable Biomass	Significant increase over 2 consecutive years	No significant change over 2 consecutive years	Significant decrease over 2 consecutive years	Significant decrease over 3 consecutive years	Significant decrease over 5 consecutive years
Ratio of Harvest : Exploitable Biomass Estimate 2006 / 2007	<20%	20% to 30%	30% to 40%	40% to 50%	>50%
	<20%	20% to 30%	30% to 40%	40% to 50%	>50%
SCAA					
Total Annual Mortality	<0.45	0.45 to 0.6	0.6 to 0.65	0.65 to 0.70	>0.70
Estimated Exploitable Biomass	Significant increase over 2 consecutive years	No significant change over 2 consecutive years	Significant decrease over 2 consecutive years	Significant decrease over 3 consecutive years	Significant decrease over 5 consecutive years
SSB	Increase over more than 2 years	Increase over 1-2 years	Unchanged	Decrease over 1-2 years	Decrease over more than 2 years
Ratio of F:M	<0.5	<0.8	< 1.0	>1	>1.5
SPR	>.45	>.35	> .20	<.20	<.15
Predicted 3 yr Old Recruitment	Increase over 3 or more years	Increase over 2 years	No Trend	Decrease over 3 years	Decrease over 5 or more years
Ratio Harvest : Est. Exploitable Biomass 2006 and 2007	<20%	20% to 30%	30% to 40%	40% to 50%	>50%
	<20%	20% to 30%	30% to 40%	40% to 50%	>50%

Notes: Using 4-1, 4-2, and 4-3 combined SCAA analysis (not shown), it appears that biomass and recruitment peaked in 2004 and has dropped off dramatically in 2005 and further in 2006. Cohort analysis not completed due to inadequate data.

QMA: 4-2	Status of Stock				
Parameter	- Risk + ← + Health/Sustainability - →				
CPUE Commercial Harvest	Increase over 2 or more consecutive years	No Trend over 2 consecutive years	Decline over 2 consecutive years	Decline over 3 consecutive years	Decline over >3 consecutive years
Predicted Recruitment from Independent Index	3 or more strong year classes predicted	1 or 2 strong year classes predicted	average year classes predicted	1 or 2 weak year classes predicted	3 + weak year classes predicted
Age Structure of Catch	Multi aged with > 12 year classes	Multi aged with > 10 year classes	Multi aged with > 8 year classes	Multi aged with ≤ 8 year classes	Multi aged with ≤ 6 year classes
Mean Age of Catch	Major Positive Change	Minor Positive Change	No Change	Minor Negative Change	Major Negative Change
Size at Age	Major Positive Change	Minor Positive Change	No Change	Minor Negative Change	Major Negative Change
Age Mature : Mean Age	>=0.6	>=0.7	>=0.8	>=0.9	>=1.0
COHORT ANALYSIS					
Total Annual Mortality	<0.45	0.45 to 0.6	0.6 to 0.65	0.65 to 0.70	>0.70
Estimated Exploitable Biomass	Significant increase over 2 consecutive years	No significant change over 2 consecutive years	Significant decrease over 2 consecutive years	Significant decrease over 3 consecutive years	Significant decrease over 5 consecutive years
Ratio of Harvest : Exploitable Biomass Estimate 2006 / 2007	<20%	20% to 30%	30% to 40%	40% to 50%	>50%
	<20%	20% to 30%	30% to 40%	40% to 50%	>50%
SCAA					
Total Annual Mortality	<0.45	0.45 to 0.6	0.6 to 0.65	0.65 to 0.70	>0.70
Estimated Exploitable Biomass	Significant increase over 2 consecutive years	No significant change over 2 consecutive years	Significant decrease over 2 consecutive years	Significant decrease over 3 consecutive years	Significant decrease over 5 consecutive years
SSB	Increase over more than 2 years	Increase over 1-2 years	Unchanged	Decrease over 1-2 years	Decrease over more than 2 years
Ratio of F:M	<0.5	<0.8	< 1.0	>1	>1.5
SPR	>.45	>.35	> .20	<.20	<.15
Predicted 3 yr Old Recruitment	Increase over 3 or more years	Increase over 2 years	No Trend	Decrease over 3 years	Decrease over 5 or more years
Ratio Harvest : Est. Exploitable Biomass 2006	<20%	20% to 30%	30% to 40%	40% to 50%	>50%
	<20%	20% to 30%	30% to 40%	40% to 50%	>50%

Notes: Spawning stock biomass is still relatively high, but total biomass is declining dramatically. It appears that recruitment is not occurring and that the population is comprised mostly of adult fish. This is a concern for the near future. Cohort mortality is 60%.

QMA: 4-3	Status of Stock				
Parameter	← - Risk + →				
	+ Health/Sustainability -				
CPUE Commercial Harvest	Increase over 2 or more consecutive years	No Trend over 2 consecutive years	Decline over 2 consecutive years	Decline over 3 consecutive years	Decline over >3 consecutive years
Predicted Recruitment from Independent Index	3 or more strong year classes predicted	1 or 2 strong year classes predicted	average year classes predicted	1 or 2 weak year classes predicted	3 + weak year classes predicted
Age Structure of Catch	Multi aged with > 12 year classes	Multi aged with > 10 year classes	Multi aged with > 8 year classes	Multi aged with ≤ 8 year classes	Multi aged with ≤ 6 year classes
Mean Age of Catch	Major Positive Change	Minor Positive Change	No Change	Minor Negative Change	Major Negative Change
Size at Age	Major Positive Change	Minor Positive Change	No Change	Minor Negative Change	Major Negative Change
Age Mature : Mean Age	>=0.6	>=0.7	>=0.8	>=0.9	>=1.0
COHORT ANALYSIS					
Total Annual Mortality	<0.45	0.45 to 0.6	0.6 to 0.65	0.65 to 0.70	>0.70
Estimated Exploitable Biomass	Significant increase over 2 consecutive years	No significant change over 2 consecutive years	Significant decrease over 2 consecutive years	Significant decrease over 3 consecutive years	Significant decrease over 5 consecutive years
Ratio of Harvest : Exploitable Biomass Estimate 2004 / 2005	<20%	20% to 30%	30% to 40%	40% to 50%	>50%
	<20%	20% to 30%	30% to 40%	40% to 50%	>50%
SCAA					
Total Annual Mortality	<0.45	0.45 to 0.6	0.6 to 0.65	0.65 to 0.70	>0.70
Estimated Exploitable Biomass	Significant increase over 2 consecutive years	No significant change over 2 consecutive years	Significant decrease over 2 consecutive years	Significant decrease over 3 consecutive years	Significant decrease over 5 consecutive years
SSB	Increase over more than 2 years	Increase over 1-2 years	Unchanged	Decrease over 1-2 years	Decrease over more than 2 years
Ratio of F:M	<0.5	<0.8	< 1.0	>1	>1.5
SPR	>.45	>.35	> .20	<.20	<.15
Predicted 3 yr Old Recruitment	Increase over 3 or more years	Increase over 2 years	No Trend	Decrease over 3 years	Decrease over 5 or more years
Ratio Harvest : Est. Exploitable Biomass 2006	<20%	20% to 30%	30% to 40%	40% to 50%	>50%
	<20%	20% to 30%	30% to 40%	40% to 50%	>50%

Notes: Cohort analysis suggests that exploitable biomass will fall below the current quota in 2007. This is based on apparently little or no recruitment.

SCAA suggests spawning biomass is still quite high compared to current harvest levels. As in 4-2, exploitable biomass is declining and most of the harvest is coming out of the SSB. Overall mortality is still quite low with natural mortality the highest contributor.

QMA: 4-4	Status of Stock				
Parameter	← - Risk + →				
	+ Health/Sustainability -				
CPUE Commercial Harvest	Increase over 2 or more consecutive years	No Trend over 2 consecutive years	Decline over 2 consecutive years	Decline over 3 consecutive years	Decline over >3 consecutive years
Predicted Recruitment from Independent Index	3 or more strong year classes predicted	1 or 2 strong year classes predicted	average year classes predicted	1 or 2 weak year classes predicted	3 + weak year classes predicted
Age Structure of Catch	Multi aged with > 12 year classes	Multi aged with > 10 year classes	Multi aged with > 8 year classes	Multi aged with ≤ 8 year classes	Multi aged with ≤ 6 year classes
Mean Age of Catch	Major Positive Change	Minor Positive Change	No Change	Minor Negative Change	Major Negative Change
Size at Age	Major Positive Change	Minor Positive Change	No Change	Minor Negative Change	Major Negative Change
Age Mature : Mean Age	>=0.6	>=0.7	>=0.8	>=0.9	>=1.0
COHORT ANALYSIS					
Total Annual Mortality	<0.45	0.45 to 0.6	0.6 to 0.65	0.65 to 0.70	>0.70
Estimated Exploitable Biomass	Significant increase over 2 consecutive years	No significant change over 2 consecutive years	Significant decrease over 2 consecutive years	Significant decrease over 3 consecutive years	Significant decrease over 5 consecutive years
Ratio of Harvest : Exploitable Biomass Estimate 2006 and 2007	<20%	20% to 30%	30% to 40%	40% to 50%	>50%
	<20%	20% to 30%	30% to 40%	40% to 50%	>50%
SCAA					
Total Annual Mortality	<0.45	0.45 to 0.6	0.6 to 0.65	0.65 to 0.70	>0.70
Estimated Exploitable Biomass	Significant increase over 2 consecutive years	No significant change over 2 consecutive years	Significant decrease over 2 consecutive years	Significant decrease over 3 consecutive years	Significant decrease over 5 consecutive years
SSB	Increase over more than 2 years	Increase over 1-2 years	Unchanged	Decrease over 1-2 years	Decrease over more than 2 years
Ratio of F:M	<0.5	<0.8	< 1.0	>1	>1.5
SPR	>.45	>.35	> .20	<.20	<.15
Predicted 3 yr Old Recruitment	Increase over 3 or more years	Increase over 2 years	No Trend	Decrease over 3 years	Decrease over 5 or more years
Ratio Harvest : Est. Exploitable Biomass 2006 and 2007	<20%	20% to 30%	30% to 40%	40% to 50%	>50%
	<20%	20% to 30%	30% to 40%	40% to 50%	>50%

Notes: Cohort mortality in 2006 appeared to decrease notably (coincident with only 38% of quota being harvested in 2005 and 48% in 2006). 3 year old recruitment was at a peak in 2002 (the 1999 year class) and has been markedly lower since (not sure why strong 2003 year class does not show up as 3 year olds in 2006?) _____

QMA: 4-5	Status of Stock				
Parameter	← - Risk + / + Health/Sustainability - →				
CPUE Commercial Harvest	Increase over 2 or more consecutive years	**No Trend over 2 consecutive years**	Decline over 2 consecutive years	Decline over 3 consecutive years	Decline over >3 consecutive years
Predicted Recruitment from Independent Index	3 or more strong year classes predicted	1 or 2 strong year classes predicted	average year classes predicted	1 or 2 weak year classes predicted	**3 + weak year classes predicted**
Age Structure of Catch	Multi aged with > 12 year classes	Multi aged with > 10 year classes	**Multi aged with > 8 year classes**	Multi aged with ≤ 8 year classes	Multi aged with ≤ 6 year classes
Mean Age of Catch	Major Positive Change	Minor Positive Change	No Change	**Minor Negative Change**	Major Negative Change
Size at Age	Major Positive Change	**Minor Positive Change**	No Change	Minor Negative Change	Major Negative Change
Age Mature : Mean Age	>=0.6	>=0.7	**>=0.8**	>=0.9	>=1.0
COHORT ANALYSIS					
Total Annual Mortality	<0.45	0.45 to 0.6	0.6 to 0.65	**0.65 to 0.70**	>0.70
Estimated Exploitable Biomass	Significant increase over 2 consecutive years	**No significant change over 2 consecutive years**	Significant decrease over 2 consecutive years	Significant decrease over 3 consecutive years	Significant decrease over 5 consecutive years
Ratio of Harvest : Exploitable Biomass Estimate 2006 and 2007	<20%	20% to 30%	**30% to 40%**	40% to 50%	>50%
	<20%	20% to 30%	30% to 40%	40% to 50%	**>50%**
SCAA					
Total Annual Mortality	**<0.45**	0.45 to 0.6	0.6 to 0.65	0.65 to 0.70	>0.70
Estimated Exploitable Biomass	Significant increase over 2 consecutive years	**No significant change over 2 consecutive years**	Significant decrease over 2 consecutive years	Significant decrease over 3 consecutive years	Significant decrease over 5 consecutive years
SSBM	Increasing	Increasing	Unchanged	**Decreasing**	Decreasing
Ratio of F:M	**<0.5**	<0.8	< 1.0	>1	>1.5
SPR	**>.45**	>.35	> .20	<.20	<.15
Predicted 3 yr Old Recruitment	Increase over 3 or more years	Increase over 2 years	No Trend	**Decrease over 3 years**	Decrease over 5 or more years
Ratio Harvest : Est. Exploitable Biomass 2006 and 2007	**<20%**	20% to 30%	30% to 40%	40% to 50%	>50%
	<20%	20% to 30%	30% to 40%	40% to 50%	>50%

Notes: Projected decline in biomass in 2007 due weaker year classes recruiting

QMA: 4-7	Status of Stock				
Parameter	← - Risk + →				
	+ Health/Sustainability -				
CPUE Commercial Harvest	Increase over 2 or more consecutive years	**No Trend over 2 consecutive years**	Decline over 2 consecutive years	Decline over 3 consecutive years	Decline over >3 consecutive years
Predicted Recruitment from Independent Index	3 or more strong year classes predicted	1 or 2 strong year classes predicted	average year classes predicted	**1 or 2 weak year classes predicted**	3 + weak year classes predicted
Age Structure of Catch	Multi aged with > 12 year classes	Multi aged with > 10 year classes	Multi aged with > 8 year classes	Multi aged with ≤ 8 year classes	**Multi aged with ≤ 6 year classes**
Mean Age of Catch	Major Positive Change	**Minor Positive Change**	No Change	Minor Negative Change	Major Negative Change
Size at Age	Major Positive Change	Minor Positive Change	No Change	Minor Negative Change	Major Negative Change
Age Mature : Mean Age	>=0.6	>=0.7	**>=0.8**	>=0.9	>=1.0
COHORT ANALYSIS					
Total Annual Mortality	**<0.45**	0.45 to 0.6	0.6 to 0.65	0.65 to 0.70	>0.70
Estimated Exploitable Biomass	Significant increase over 2 consecutive years	No significant change over 2 consecutive years	Significant decrease over 2 consecutive years	Significant decrease over 3 consecutive years	Significant decrease over 5 consecutive years
Ratio of Harvest : Exploitable Biomass Estimate 2006 and 2007	<20%	20% to 30%	30% to 40%	40% to 50%	>50%
	<20%	20% to 30%	30% to 40%	40% to 50%	>50%
SCAA					
Total Annual Mortality	**<0.45**	0.45 to 0.6	0.6 to 0.65	0.65 to 0.70	>0.70
Estimated Exploitable Biomass	Significant increase over 2 consecutive years	**No significant change over 2 consecutive years**	Significant decrease over 2 consecutive years	Significant decrease over 3 consecutive years	Significant decrease over 5 consecutive years
SSBM	Increasing	**Increasing**	**Unchanged**	Decreasing	Decreasing
Ratio of F:M	**<0.5**	<0.8	< 1.0	>1	>1.5
SPR	**>.45**	>.35	> .20	<.20	<.15
Predicted 3 yr Old Recruitment	Increase over 3 or more years	Increase over 2 years	**No Trend**	Decrease over 3 years	Decrease over 5 or more years
Ratio Harvest : Est. Exploitable Biomass 2006 and 2007	**<20%**	20% to 30%	30% to 40%	40% to 50%	>50%
	<20%	20% to 30%	30% to 40%	40% to 50%	>50%

Notes: SCAA information is for QMA 4-4 and 4-7 combined. Minimal cohort analysis generated information available for QMA 4-7.

QMA: 5-1	Status of Stock				
Parameter	← - Risk + →				
	+ Health/Sustainability -				
CPUE Commercial Harvest	Increase over 2 or more consecutive years	No Trend over 2 consecutive years	**Decline over 2 consecutive years**	Decline over 3 consecutive years	Decline over >3 consecutive years
Predicted Recruitment from Independent Index	3 or more strong year classes predicted	**1 or 2 strong year classes predicted**	average year classes predicted	1 or 2 weak year classes predicted	3 + weak year classes predicted
Age Structure of Catch	Multi aged with > 12 year classes	**Multi aged with > 10 year classes**	Multi aged with > 8 year classes	Multi aged with ≤ 8 year classes	Multi aged with ≤ 6 year classes
Mean Age of Catch	Major Positive Change	**Minor Positive Change**	No Change	Minor Negative Change	Major Negative Change
Size at Age	Major Positive Change	Minor Positive Change	No Change	**Minor Negative Change**	Major Negative Change
Age Mature : Mean Age	>=0.6	**>=0.7**	>=0.8	>=0.9	>=1.0
COHORT ANALYSIS					
Total Annual Mortality	<0.45	0.45 to 0.6	0.6 to 0.65	0.65 to 0.70	>0.70
Estimated Exploitable Biomass	Significant increase over 2 consecutive years	No significant change over 2 consecutive years	Significant decrease over 2 consecutive years	**Significant decrease over 3 consecutive years**	**Significant decrease over 5 consecutive years**
Ratio of Harvest : Exploitable Biomass Estimate 2006 and 2007	**<20%**	20% to 30%	30% to 40%	40% to 50%	>50%
	<20%	**20% to 30%**	30% to 40%	40% to 50%	>50%
SCAA					
Total Annual Mortality	<0.45	0.45 to 0.6	0.6 to 0.65	0.65 to 0.70	>0.70
Estimated Exploitable Biomass	Significant increase over 2 consecutive years	No significant change over 2 consecutive years	Significant decrease over 2 consecutive years	Significant decrease over 3 consecutive years	Significant decrease over 5 consecutive years
SSBM	Increasing	Increasing	Unchanged	Decreasing	Decreasing
Ratio of F:M	<0.5	<0.8	< 1.0	>1	>1.5
SPR	>.45	>.35	> .20	<.20	<.15
Predicted 3 yr Old Recruitment	Increase over 3 or more years	Increase over 2 years	No Trend	Decrease over 3 years	Decrease over 5 or more years
Ratio Harvest : Est. Exploitable Biomass 2004 / 2005	<20%	20% to 30%	30% to 40%	40% to 50%	>50%
	<20%	20% to 30%	30% to 40%	40% to 50%	>50%

Notes: Cohort mortality can't be calculated? No SCAA analysis done for 5-1

QMA: 5-2	Status of Stock				
Parameter	← - Risk + → + Health/Sustainability -				
CPUE Commercial Harvest	Increase over 2 or more consecutive years	**No Trend over 2 consecutive years**	Decline over 2 consecutive years	Decline over 3 consecutive years	Decline over >3 consecutive years
Predicted Recruitment from Independent Index	3 or more strong year classes predicted	**1 or 2 strong year classes predicted**	average year classes predicted	1 or 2 weak year classes predicted	3 + weak year classes predicted
Age Structure of Catch	Multi aged with > 12 year classes	Multi aged with > 10 year classes	Multi aged with > 8 year classes	Multi aged with ≤ 8 year classes	Multi aged with ≤ 6 year classes
Mean Age of Catch	Major Positive Change	Minor Positive Change	No Change	Minor Negative Change	Major Negative Change
Size at Age	Major Positive Change	Minor Positive Change	No Change	Minor Negative Change	Major Negative Change
Age Mature : Mean Age	>=0.6	>=0.7	>=0.8	>=0.9	>=1.0
COHORT ANALYSIS					
Total Annual Mortality	<0.45	0.45 to 0.6	0.6 to 0.65	0.65 to 0.70	>0.70
Estimated Exploitable Biomass	Significant increase over 2 consecutive years	No significant change over 2 consecutive years	Significant decrease over 2 consecutive years	Significant decrease over 3 consecutive years	Significant decrease over 5 consecutive years
Ratio of Harvest : Exploitable Biomass Estimate 2004 / 2005	<20%	20% to 30%	30% to 40%	40% to 50%	>50%
	<20%	20% to 30%	30% to 40%	40% to 50%	>50%
SCAA					
Total Annual Mortality	<0.45	0.45 to 0.6	0.6 to 0.65	0.65 to 0.70	>0.70
Estimated Exploitable Biomass	Significant increase over 2 consecutive years	No significant change over 2 consecutive years	Significant decrease over 2 consecutive years	Significant decrease over 3 consecutive years	Significant decrease over 5 consecutive years
SSBM	Increasing	Increasing	Unchanged	Decreasing	Decreasing
Ratio of F:M	<0.5	<0.8	< 1.0	>1	>1.5
SPR	>.45	>.35	> .20	<.20	<.15
Predicted 3 yr Old Recruitment	Increase over 3 or more years	Increase over 2 years	No Trend	Decrease over 3 years	Decrease over 5 or more years
Ratio Harvest : Est. Exploitable Biomass 2004 / 2005	<20%	20% to 30%	30% to 40%	40% to 50%	>50%
	<20%	20% to 30%	30% to 40%	40% to 50%	>50%

Notes: No catch sampling in 2006, therefore little 2006 information. Cohort analysis could not be done for 2006. Previous cohort analysis suggested abundance is on a declining trend over several years (but based on limited data). No SCAA analysis done. Only around 50% of quota has been harvested for several years.

QMA: 5-3	Status of Stock				
Parameter	- ← **Risk** → + + ← **Health/Sustainability** → -				
CPUE Commercial Harvest	Increase over 2 or more consecutive years	**No Trend over 2 consecutive years**	Decline over 2 consecutive years	Decline over 3 consecutive years	Decline over >3 consecutive years
Predicted Recruitment from Independent Index	3 or more strong year classes predicted	**1 or 2 strong year classes predicted**	average year classes predicted	1 or 2 weak year classes predicted	3 + weak year classes predicted
Age Structure of Catch	Multi aged with > 12 year classes	Multi aged with > 10 year classes	**Multi aged with > 8 year classes**	Multi aged with ≤ 8 year classes	Multi aged with ≤ 6 year classes
Mean Age of Catch	Major Positive Change	Minor Positive Change	No Change	**Minor Negative Change**	Major Negative Change
Size at Age	Major Positive Change	**Minor Positive Change**	No Change	Minor Negative Change	Major Negative Change
Age Mature : Mean Age	>=0.6	>=0.7	>=0.8	>=0.9	**>=1.0**
COHORT ANALYSIS					
Total Annual Mortality	<0.45	0.45 to 0.6	**0.6 to 0.65**	0.65 to 0.70	>0.70
Estimated Exploitable Biomass	Significant increase over 2 consecutive years	No significant change over 2 consecutive years	Significant decrease over 2 consecutive years	Significant decrease over 3 consecutive years	Significant decrease over 5 consecutive years
Ratio of Harvest : Exploitable Biomass Estimate 2006 and 2007	<20%	20% to 30%	30% to 40%	40% to 50%	>50%
	<20%	20% to 30%	30% to 40%	40% to 50%	>50%
SCAA					
Total Annual Mortality	<0.45	0.45 to 0.6	0.6 to 0.65	0.65 to 0.70	>0.70
Estimated Exploitable Biomass	Significant increase over 2 consecutive years	No significant change over 2 consecutive years	Significant decrease over 2 consecutive years	Significant decrease over 3 consecutive years	Significant decrease over 5 consecutive years
SSBM	Increasing	Increasing	Unchanged	Decreasing	Decreasing
Ratio of F:M	<0.5	<0.8	< 1.0	>1	>1.5
SPR	>.45	>.35	> .20	<.20	<.15
Predicted 3 yr Old Recruitment	Increase over 3 or more years	Increase over 2 years	No Trend	Decrease over 3 years	Decrease over 5 or more years
Ratio Harvest : Est. Exploitable Biomass 2006 and 2007	<20%	20% to 30%	30% to 40%	40% to 50%	>50%
	<20%	20% to 30%	30% to 40%	40% to 50%	>50%

Notes: Cohort mortality was higher for 2006 than 3 year average. Exploitable biomass projected to be lower in 2007 than 2006. No SCAA analysis done.

QMA: 5-6	Status of Stock				
Parameter	← - Risk + →				
	+ Health/Sustainability -				
CPUE Commercial Harvest	**Increase over 2 or more consecutive years**	No Trend over 2 consecutive years	Decline over 2 consecutive years	Decline over 3 consecutive years	Decline over >3 consecutive years
Predicted Recruitment from Independent Index	3 or more strong year classes predicted	**1 or 2 strong year classes predicted**	average year classes predicted	1 or 2 weak year classes predicted	3 + weak year classes predicted
Age Structure of Catch	Multi aged with > 12 year classes	Multi aged with > 10 year classes	Multi aged with > 8 year classes	Multi aged with ≤ 8 year classes	**Multi aged with ≤ 6 year classes**
Mean Age of Catch	Major Positive Change	Minor Positive Change	**No Change**	Minor Negative Change	Major Negative Change
Size at Age	Major Positive Change	Minor Positive Change	No Change	Minor Negative Change	Major Negative Change
Age Mature : Mean Age	>=0.6	>=0.7	>=0.8	>=0.9	**>=1.0**
COHORT ANALYSIS					
Total Annual Mortality	**<0.45**	0.45 to 0.6	0.6 to 0.65	0.65 to 0.70	>0.70
Estimated Exploitable Biomass	Significant increase over 2 consecutive years	No significant change over 2 consecutive years	Significant decrease over 2 consecutive years	Significant decrease over 3 consecutive years	Significant decrease over 5 consecutive years
Ratio of Harvest : Exploitable Biomass Estimate 2006 and 2007	<20%	20% to 30%	30% to 40%	40% to 50%	>50%
	<20%	20% to 30%	30% to 40%	40% to 50%	>50%
SCAA					
Total Annual Mortality	<0.45	0.45 to 0.6	0.6 to 0.65	0.65 to 0.70	>0.70
Estimated Exploitable Biomass	Significant increase over 2 consecutive years	No significant change over 2 consecutive years	Significant decrease over 2 consecutive years	Significant decrease over 3 consecutive years	Significant decrease over 5 consecutive years
SSBM	Increasing	Increasing	Unchanged	Decreasing	Decreasing
Ratio of F:M	<0.5	<0.8	< 1.0	>1	>1.5
SPR	>.45	>.35	> .20	<.20	<.15
Predicted 3 yr Old Recruitment	Increase over 3 or more years	Increase over 2 years	No Trend	Decrease over 3 years	Decrease over 5 or more years
Ratio Harvest : Est. Exploitable Biomass 2004 / 2005	<20%	20% to 30%	30% to 40%	40% to 50%	>50%
	<20%	20% to 30%	30% to 40%	40% to 50%	>50%

Notes: Cohort analysis projects 2007 exploitable biomass to decline to only about 110% of quota. Only around 50% of quota was harvested each year since 2004. No SCAA analysis done. QMA 5-6 not modeled due to lack of data.

QMA: 5-7	Status of Stock				
Parameter	← - Risk + → + Health/Sustainability -				
CPUE Commercial Harvest	Increase over 2 or more consecutive years	**No Trend over 2 consecutive years**	Decline over 2 consecutive years	Decline over 3 consecutive years	Decline over >3 consecutive years
Predicted Recruitment from Independent Index	3 or more strong year classes predicted	**1 or 2 strong year classes predicted**	average year classes predicted	1 or 2 weak year classes predicted	3 + weak year classes predicted
Age Structure of Catch	Multi aged with > 12 year classes	Multi aged with > 10 year classes	Multi aged with > 8 year classes	**Multi aged with ≤ 8 year classes**	Multi aged with ≤ 6 year classes
Mean Age of Catch	Major Positive Change	**Minor Positive Change**	No Change	Minor Negative Change	Major Negative Change
Size at Age	Major Positive Change	**Minor Positive Change**	No Change	Minor Negative Change	Major Negative Change
Age Mature : Mean Age	>=0.6	>=0.7	>=0.8	>=0.9	**>=1.0**
COHORT ANALYSIS					
Total Annual Mortality	<0.45	0.45 to 0.6	**0.6 to 0.65**	0.65 to 0.70	>0.70
Estimated Exploitable Biomass	Significant increase over 2 consecutive years	No significant change over 2 consecutive years	Significant decrease over 2 consecutive years	Significant decrease over 3 consecutive years	Significant decrease over 5 consecutive years
Ratio of Harvest : Exploitable Biomass Estimate 2006 and 2007	<20%	20% to 30%	30% to 40%	40% to 50%	>50%
	<20%	20% to 30%	30% to 40%	40% to 50%	>50%
SCAA					
Total Annual Mortality	<0.45	0.45 to 0.6	0.6 to 0.65	0.65 to 0.70	>0.70
Estimated Exploitable Biomass	Significant increase over 2 consecutive years	No significant change over 2 consecutive years	Significant decrease over 2 consecutive years	Significant decrease over 3 consecutive years	Significant decrease over 5 consecutive years
SSBM	Increasing	Increasing	Unchanged	Decreasing	Decreasing
Ratio of F:M	<0.5	<0.8	< 1.0	>1	>1.5
SPR	>.45	>.35	> .20	<.20	<.15
Predicted 3 yr Old Recruitment	Increase over 3 or more years	Increase over 2 years	No Trend	Decrease over 3 years	Decrease over 5 or more years
Ratio Harvest : Est. Exploitable Biomass 2006 and 2007	<20%	20% to 30%	30% to 40%	40% to 50%	>50%
	<20%	20% to 30%	30% to 40%	40% to 50%	>50%

Notes: Cohort analysis gives some seemingly strange numbers (eg. Exploitable biomass projected for 2007 is less than half of the quota), input values should be checked. No SCAA analysis done. Only around 30% of quota harvested each year since 2004.

Cohort analysis not completed due to changes in fishery (BFN in and out)

QMA: 5-8	Status of Stock				
Parameter	← - Risk + → + Health/Sustainability -				
CPUE Commercial Harvest	Increase over 2 or more consecutive years	**No Trend over 2 consecutive years**	Decline over 2 consecutive years	Decline over 3 consecutive years	Decline over >3 consecutive years
Predicted Recruitment from Independent Index	3 or more strong year classes predicted	**1 or 2 strong year classes predicted**	average year classes predicted	1 or 2 weak year classes predicted	3 + weak year classes predicted
Age Structure of Catch	Multi aged with > 12 year classes	Multi aged with > 10 year classes	**Multi aged with > 8 year classes**	Multi aged with ≤ 8 year classes	Multi aged with ≤ 6 year classes
Mean Age of Catch	Major Positive Change	**Minor Positive Change**	No Change	Minor Negative Change	Major Negative Change
Size at Age	Major Positive Change	Minor Positive Change	No Change	Minor Negative Change	Major Negative Change
Age Mature : Mean Age	>=0.6	>=0.7	>=0.8	**>=0.9**	>=1.0
COHORT ANALYSIS					
Total Annual Mortality	**<0.45**	0.45 to 0.6	0.6 to 0.65	0.65 to 0.70	>0.70
Estimated Exploitable Biomass	Significant increase over 2 consecutive years	No significant change over 2 consecutive years	**Significant decrease over 2 consecutive years**	Significant decrease over 3 consecutive years	Significant decrease over 5 consecutive years
Ratio of Harvest : Exploitable Biomass Estimate 2006 and 2007	**<20%**	20% to 30%	30% to 40%	40% to 50%	>50%
	<20%	**20% to 30%**	30% to 40%	40% to 50%	>50%
SCAA					
Total Annual Mortality	**<0.45**	0.45 to 0.6	0.6 to 0.65	0.65 to 0.70	>0.70
Estimated Exploitable Biomass	Significant increase over 2 consecutive years	No significant change over 2 consecutive years	Significant decrease over 2 consecutive years	**Significant decrease over 3 consecutive years**	Significant decrease over 5 consecutive years
SSBM	Increasing	Increasing	**Unchanged**	Decreasing	Decreasing
Ratio of F:M	**<0.5**	<0.8	< 1.0	>1	>1.5
SPR	**>.45**	>.35	> .20	<.20	<.15
Predicted 3 yr Old Recruitment	Increase over 3 or more years	Increase over 2 years	**No Trend**	Decrease over 3 years	Decrease over 5 or more years
Ratio Harvest : Est. Exploitable Biomass 2006	**<20%**	20% to 30%	30% to 40%	40% to 50%	>50%
	<20%	20% to 30%	30% to 40%	40% to 50%	>50%

Notes: Cohort analysis using ADMB gives an estimated biomass that is way higher than the quota (like 100 times higher). Thus used estimated F worksheet. SCAA gives a decrease in SSB in 2004 and 2005, with an increase in 2006. SCAA 3 year old recruitment was at a peak in 2002 and is much lower since. Exp. biomass for 2006 from SCAA was almost 3 million kg, while cohort est F value is only 334,407 kg!

QMA: 5-9	Status of Stock				
Parameter	- ← Risk → + + ← Health/Sustainability → -				
CPUE Commercial Harvest	**Increase over 2 or more consecutive years**	No Trend over 2 consecutive years	Decline over 2 consecutive years	Decline over 3 consecutive years	Decline over >3 consecutive years
Predicted Recruitment from Independent Index	3 or more strong year classes predicted	**1 or 2 strong year classes predicted**	average year classes predicted	1 or 2 weak year classes predicted	3 + weak year classes predicted
Age Structure of Catch	Multi aged with > 12 year classes	Multi aged with > 10 year classes	**Multi aged with > 8 year classes**	Multi aged with ≤ 8 year classes	Multi aged with ≤ 6 year classes
Mean Age of Catch	Major Positive Change	**Minor Positive Change**	No Change	Minor Negative Change	Major Negative Change
Size at Age	Major Positive Change	Minor Positive Change	**No Change**	Minor Negative Change	Major Negative Change
Age Mature : Mean Age	>=0.6	>=0.7	**>=0.8**	>=0.9	>=1.0
COHORT ANALYSIS					
Total Annual Mortality	<0.45	0.45 to 0.6	**0.6 to 0.65**	0.65 to 0.70	>0.70
Estimated Exploitable Biomass	Significant increase over 2 consecutive years	**No significant change over 2 consecutive years**	Significant decrease over 2 consecutive years	Significant decrease over 3 consecutive years	Significant decrease over 5 consecutive years
Ratio of Harvest : Exploitable Biomass Estimate 2006 and 2007	<20%	**20% to 30%**	30% to 40%	40% to 50%	>50%
	<20%	20% to 30%	**30% to 40%**	40% to 50%	>50%
SCAA					
Total Annual Mortality	**<0.45**	0.45 to 0.6	0.6 to 0.65	0.65 to 0.70	>0.70
Estimated Exploitable Biomass	Significant increase over 2 consecutive years	No significant change over 2 consecutive years	Significant decrease over 2 consecutive years	**Significant decrease over 3 consecutive years**	Significant decrease over 5 consecutive years
SSBM	Increasing	Increasing	Unchanged	**Decreasing**	Decreasing
Ratio of F:M	<0.5	**<0.8**	< 1.0	>1	>1.5
SPR	>.45	>.35	**> .20**	<.20	<.15
Predicted 3 yr Old Recruitment	Increase over 3 or more years	Increase over 2 years	**No Trend**	**Decrease over 3 years**	Decrease over 5 or more years
Ratio Harvest : Est. Exploitable Biomass 2006	**<20%**	20% to 30%	30% to 40%	40% to 50%	>50%
	<20%	20% to 30%	30% to 40%	40% to 50%	>50%

Notes: ADMB based cohort analysis gives generally quite a bit higher exploitable biomass than estimated F based (in the order of twice as large). SCAA estimated biomass in 2006 was 619,401 kg.

QMA: 6-1	Status of Stock				
Parameter	← - Risk + →				
	+ Health/Sustainability -				
CPUE Commercial Harvest	Increase over 2 or more consecutive years	**No Trend over 2 consecutive years**	Decline over 2 consecutive years	Decline over 3 consecutive years	Decline over >3 consecutive years
Predicted Recruitment from Independent Index	3 or more strong year classes predicted	1 or 2 strong year classes predicted	**average year classes predicted**	1 or 2 weak year classes predicted	3 + weak year classes predicted
Age Structure of Catch	Multi aged with > 12 year classes	**Multi aged with > 10 year classes**	Multi aged with > 8 year classes	Multi aged with ≤ 8 year classes	Multi aged with ≤ 6 year classes
Mean Age of Catch	Major Positive Change	**Minor Positive Change**	No Change	Minor Negative Change	Major Negative Change
Size at Age	Major Positive Change	**Minor Positive Change**	**No Change**	Minor Negative Change	Major Negative Change
Age Mature : Mean Age	>=0.6	**>=0.7**	>=0.8	>=0.9	>=1.0
COHORT ANALYSIS					
Total Annual Mortality	**<0.45**	0.45 to 0.6	0.6 to 0.65	0.65 to 0.70	>0.70
Estimated Exploitable Biomass	Significant increase over 2 consecutive years	No significant change over 2 consecutive years	Significant decrease over 2 consecutive years	**Significant decrease over 3 consecutive years**	Significant decrease over 5 consecutive years
Ratio of Harvest : Exploitable Biomass Estimate 2006 and 2007	<20%	20% to 30%	30% to 40%	**40% to 50%**	>50%
	<20%	20% to 30%	30% to 40%	40% to 50%	**>50%**
SCAA					
Total Annual Mortality	<0.45	**0.45 to 0.6**	0.6 to 0.65	0.65 to 0.70	>0.70
Estimated Exploitable Biomass	Significant increase over 2 consecutive years	No significant change over 2 consecutive years	Significant decrease over 2 consecutive years	**Significant decrease over 3 consecutive years**	Significant decrease over 5 consecutive years
SSBM	Increasing	Increasing	**Unchanged**	Decreasing	Decreasing
Ratio of F:M	<0.5	**<0.8**	< 1.0	>1	>1.5
SPR	**>.45**	>.35	> .20	<.20	<.15
Predicted 3 yr Old Recruitment	Increase over 3 or more years	Increase over 2 years	**No Trend**	**Decrease over 3 years**	Decrease over 5 or more years
Ratio Harvest : Est. Exploitable Biomass 2006	<20%	**20% to 30%**	30% to 40%	40% to 50%	>50%
	<20%	20% to 30%	30% to 40%	40% to 50%	>50%

Notes: Cohort using est F doesn't give as large a decline in biomass as ADMB based, and projects a larger biomass in 2006 and 2007 (used ADMB based for check boxes above).

QMA: 6-3	Status of Stock				
Parameter	← - Risk + / + Health/Sustainability - →				
CPUE Commercial Harvest	Increase over 2 or more consecutive years	No Trend over 2 consecutive years	Decline over 2 consecutive years	Decline over 3 consecutive years	Decline over >3 consecutive years
Predicted Recruitment from Independent Index	3 or more strong year classes predicted	1 or 2 strong year classes predicted	average year classes predicted	1 or 2 weak year classes predicted	3 + weak year classes predicted
Age Structure of Catch	Multi aged with > 12 year classes	Multi aged with > 10 year classes	Multi aged with > 8 year classes	Multi aged with ≤ 8 year classes	Multi aged with ≤ 6 year classes
Mean Age of Catch	Major Positive Change	Minor Positive Change	No Change	Minor Negative Change	Major Negative Change
Size at Age	Major Positive Change	Minor Positive Change	No Change	Minor Negative Change	Major Negative Change
Age Mature : Mean Age	>=0.6	>=0.7	>=0.8	>=0.9	>=1.0
COHORT ANALYSIS					
Total Annual Mortality	<0.45	0.45 to 0.6	0.6 to 0.65	0.65 to 0.70	>0.70
Estimated Exploitable Biomass	Significant increase over 2 consecutive years	No significant change over 2 consecutive years	Significant decrease over 2 consecutive years	Significant decrease over 3 consecutive years	Significant decrease over 5 consecutive years
Ratio of Harvest : Exploitable Biomass Estimate 2004 / 2005	<20%	20% to 30%	30% to 40%	40% to 50%	>50%
	<20%	20% to 30%	30% to 40%	40% to 50%	>50%
SCAA					
Total Annual Mortality	<0.45	0.45 to 0.6	0.6 to 0.65	0.65 to 0.70	>0.70
Estimated Exploitable Biomass	Significant increase over 2 consecutive years	No significant change over 2 consecutive years	Significant decrease over 2 consecutive years	Significant decrease over 3 consecutive years	Significant decrease over 5 consecutive years
SSBM	Increasing	Increasing	Unchanged	Decreasing	Decreasing
Ratio of F:M	<0.5	<0.8	< 1.0	>1	>1.5
SPR	>.45	>.35	> .20	<.20	<.15
Predicted 3 yr Old Recruitment	Increase over 3 or more years	Increase over 2 years	No Trend	Decrease over 3 years	Decrease over 5 or more years
Ratio Harvest : Est. Exploitable Biomass 2004 / 2005	<20%	20% to 30%	30% to 40%	40% to 50%	>50%
	<20%	20% to 30%	30% to 40%	40% to 50%	>50%

Notes: _____

Appendix B – Catch at Age Tables

Table 4-1.1. The estimated number of lake whitefish caught in gill nets in management area 4-1. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0	0	0	0	0	0	0	0	0	0	0	0			0	0
2	0	0	0	0	0	0	0	0	0	0	0	0			0	0
3	42	261	455	498	430	0	306	0	0	0	0	0			0	0
4	3,322	11,415	6,369	8,958	7,739	827	2,602	656	0	652	331	0	N	N	0	0
5	2,145	5,740	11,464	16,424	20,638	13,855	9,950	3,282	567	3,914	2,651	1,273	O	O	269	690
6	1,430	2,674	4,276	12,940	21,068	23,368	14,543	13,786	7,366	13,698	16,238	5,091			2,693	3,448
7	589	783	2,457	6,968	7,023	18,818	17,299	20,351	15,298	16,633	17,564	15,273			10,501	4,138
8	883	652	728	995	1,290	4,343	10,716	15,099	19,831	14,676	13,919	15,273	D	D	12,116	9,654
9	378	522	182	498	287	620	3,368	8,534	9,066	10,762	9,611	11,455	A	A	7,808	8,965
10	294	457	455	0	0	207	1,837	3,282	3,400	2,935	4,308	6,364	T	T	4,847	2,758
11	126	326	364	1,493	143	0	153	656	0	1,305	1,326	6,364	A	A	1,346	2,758
12	0	130	364	0	0	0	153	0	0	0	331	1,273			808	0
13	0	65	182	0	0	0	153	0	567	0	0	0			269	0
14	0	0	0	498	0	0	153	0	0	0	0	0			0	0
15	0	0	0	0	0	0	0	0	0	0	0	0			0	0
Total	9,210	23,026	27,296	49,272	58,616	62,038	61,234	65,648	56,094	64,574	66,279	62,366	0	0	40,658	32,411
Mean Age	5.61	5.09	5.49	5.72	5.55	6.24	6.72	7.34	7.77	7.41	7.46	8.31	--	--	8.23	8.30

Table 4-1.2. CPUE (number/km) for lake whitefish caught in gill nets in management area 4-1. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0
3	0.2	0.7	0.9	0.9	0.9	0.0	0.5	0.0	0.0	0.0	0.0	0.0			0.0	0.0
4	14.1	29.6	12.6	15.7	15.8	1.8	4.1	0.9	0.0	1.0	0.5	0.0	N	N	0.0	0.0
5	9.1	14.9	22.8	28.7	42.3	30.5	15.7	4.7	0.9	6.0	4.3	2.3	O	O	0.4	1.7
6	6.1	6.9	8.5	22.6	43.1	51.5	23.0	19.8	12.1	21.1	26.5	9.2			4.0	8.5
7	2.5	2.0	4.9	12.2	14.4	41.5	27.4	29.2	25.1	25.7	28.7	27.7			15.4	10.2
8	3.7	1.7	1.4	1.7	2.6	9.6	17.0	21.6	32.5	22.6	22.7	27.7	D	D	17.8	23.7
9	1.6	1.4	0.4	0.9	0.6	1.4	5.3	12.2	14.9	16.6	15.7	20.7	A	A	11.5	22.0
10	1.2	1.2	0.9	0.0	0.0	0.5	2.9	4.7	5.6	4.5	7.0	11.5	T	T	7.1	6.8
11	0.5	0.8	0.7	2.6	0.3	0.0	0.2	0.9	0.0	2.0	2.2	11.5	A	A	2.0	6.8
12	0.0	0.3	0.7	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.5	2.3			1.2	0.0
13	0.0	0.2	0.4	0.0	0.0	0.0	0.2	0.0	0.9	0.0	0.0	0.0			0.4	0.0
14	0.0	0.0	0.0	0.9	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0			0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total	39.1	59.7	54.2	86.2	120.0	136.8	96.9	94.1	91.9	99.6	108.2	112.9	0.0	0.0	59.7	79.7

Table 4-2.1. The estimated number of lake whitefish caught in gill nets in management area 4-2. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	175	0	239	0	0	0	0	0	0	0	0	0	0	0
3	391	1,703	2,369	898	239	0	375	0	0	0	0	0	0	0	0	0
4	25,949	18,383	9,871	26,455	14,346	2,236	2,998	0	0	463	0	0	0	1,003	0	0
5	14,342	18,470	9,740	26,536	25,704	41,928	13,116	15,128	5,378	6,025	2,851	4,242	1,412	5,015	2,842	0
6	2,511	2,926	2,808	15,922	30,366	36,897	36,725	32,777	15,059	26,416	21,990	42,420	10,589	17,051	13,264	4,244
7	1,283	742	965	6,614	15,661	21,803	37,475	57,991	34,421	17,611	23,212	33,936	28,238	32,096	32,687	18,036
8	1,786	742	483	2,205	5,021	5,777	14,990	12,607	37,648	12,976	22,398	21,210	38,121	23,069	38,846	33,951
9	391	349	132	735	2,391	1,304	6,371	5,043	11,832	17,147	20,362	4,242	14,825	11,535	18,475	26,524
10	112	131	175	653	956	559	375	2,521	2,151	8,805	8,959	0	9,177	4,514	9,001	14,853
11	112	0	0	327	359	373	0	0	1,076	2,781	1,222	0	2,118	3,511	2,369	5,305
12	0	0	88	245	239	186	0	0	0	0	407	0	706	1,003	0	1,061
13	0	0	0	0	0	186	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	120	0	0	0	0	0	0	0	0	0	0	0
15	0	44	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	46,875	43,491	26,806	80,589	95,642	111,249	112,424	126,067	107,566	92,224	101,401	106,051	105,186	98,797	117,484	103,974
Mean Age	4.71	4.71	4.74	5.22	5.84	5.98	6.60	6.74	7.43	7.49	7.68	6.80	7.89	7.49	7.79	8.48

Table 4-2.2. CPUE (number/km) for lake whitefish caught in gill nets in management area 4-2. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.3	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.4	1.8	3.6	0.7	0.3	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	26.7	19.4	14.9	22.0	16.1	2.6	3.6	0.0	0.0	0.6	0.0	0.0	0.0	0.8	0.0	0.0
5	14.7	19.5	14.7	22.1	28.8	48.4	15.7	16.7	6.6	7.6	2.6	3.1	1.1	3.8	1.8	0.0
6	2.6	3.1	4.2	13.2	34.0	42.6	43.9	36.1	18.5	33.2	19.9	31.1	8.2	13.0	8.5	2.7
7	1.3	0.8	1.5	5.5	17.5	25.2	44.8	63.9	42.2	22.1	21.0	24.9	21.8	24.5	21.0	11.4
8	1.8	0.8	0.7	1.8	5.6	6.7	17.9	13.9	46.2	16.3	20.2	15.5	29.4	17.6	24.9	21.4
9	0.4	0.4	0.2	0.6	2.7	1.5	7.6	5.6	14.5	21.5	18.4	3.1	11.4	8.8	11.9	16.7
10	0.1	0.1	0.3	0.5	1.1	0.6	0.4	2.8	2.6	11.1	8.1	0.0	7.1	3.5	5.8	9.4
11	0.1	0.0	0.0	0.3	0.4	0.4	0.0	0.0	1.3	3.5	1.1	0.0	1.6	2.7	1.5	3.3
12	0.0	0.0	0.1	0.2	0.3	0.2	0.0	0.0	0.0	0.0	0.4	0.0	0.5	0.8	0.0	0.7
13	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	48.2	45.9	40.5	67.0	107.1	128.4	134.3	138.9	132.0	115.9	91.6	77.7	81.2	75.5	75.4	65.5

Table 4-2.13. The estimated number of lake whitefish caught in trap nets in management area 4-2. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	126	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	1,771	1,484	785	302	402	506	1,044	631	0	0	256	328	0	903	0	0
3	5,860	4,658	5,323	3,654	3,149	2,783	6,658	5,363	2,268	2,404	2,560	4,917	0	4,066	0	295
4	15,177	9,198	7,267	4,890	13,266	5,483	9,791	7,571	7,055	10,578	5,632	8,524	3,862	8,131	1,482	886
5	2,782	3,798	2,985	2,335	10,653	23,196	16,187	10,725	12,850	17,791	15,616	10,818	22,205	13,100	8,893	9,746
6	464	712	1,007	797	8,576	12,568	15,143	13,880	17,133	19,233	19,200	14,752	26,066	17,166	16,305	7,088
7	169	148	239	412	4,221	5,989	10,704	17,980	16,377	17,150	18,944	19,014	29,928	15,359	20,751	11,814
8	42	30	68	110	1,675	1,771	3,916	7,886	9,574	16,989	16,384	17,047	29,928	20,780	19,763	14,472
9	84	0	136	27	938	506	392	2,208	4,031	10,097	15,360	10,491	11,585	9,035	15,317	11,814
10	42	0	17	82	402	84	131	0	756	4,488	5,632	4,262	7,723	3,614	3,953	8,860
11	0	0	17	27	268	0	0	0	252	1,923	2,048	983	0	1,355	988	2,067
12	0	0	0	27	67	84	0	0	0	0	0	0	965	0	494	1,181
13	0	0	0	0	67	0	0	0	0	0	0	0	0	0	0	295
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	26,518	20,058	17,844	12,665	43,682	52,970	63,966	66,243	70,296	100,654	101,632	91,138	132,263	93,510	87,946	68,520
Mean Age	3.82	3.90	4.00	4.19	5.22	5.38	5.38	5.94	6.26	6.62	6.93	6.69	6.99	6.64	7.34	7.73

Table 4-2.14. CPUE (number/net lift) for lake whitefish caught in trap nets in management area 4-2. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	9.1	9.4	5.6	3.8	2.9	4.5	7.2	3.4	0.0	0.0	1.9	2.6	0.0	6.9	0.0	0.0
3	30.2	29.5	38.0	45.7	22.8	24.6	45.6	28.5	13.3	16.2	19.0	38.7	0.0	31.0	0.0	2.0
4	78.2	58.3	51.9	61.1	96.1	48.5	67.1	40.3	41.5	71.5	41.7	67.1	27.8	62.1	8.9	6.0
5	14.3	24.1	21.3	29.2	77.2	205.3	110.9	57.0	75.6	120.2	115.7	85.2	159.7	100.0	53.3	65.9
6	2.4	4.5	7.2	10.0	62.1	111.2	103.7	73.8	100.8	130.0	142.2	116.2	187.5	131.0	97.6	47.9
7	0.9	0.9	1.7	5.2	30.6	53.0	73.3	95.6	96.3	115.9	140.3	149.7	215.3	117.2	124.3	79.8
8	0.2	0.2	0.5	1.4	12.1	15.7	26.8	41.9	56.3	114.8	121.4	134.2	215.3	158.6	118.3	97.8
9	0.4	0.0	1.0	0.3	6.8	4.5	2.7	11.7	23.7	68.2	113.8	82.6	83.3	69.0	91.7	79.8
10	0.2	0.0	0.1	1.0	2.9	0.7	0.9	0.0	4.4	30.3	41.7	33.6	55.6	27.6	23.7	59.9
11	0.0	0.0	0.1	0.3	1.9	0.0	0.0	0.0	1.5	13.0	15.2	7.7	0.0	10.3	5.9	14.0
12	0.0	0.0	0.0	0.3	0.5	0.7	0.0	0.0	0.0	0.0	0.0	0.0	6.9	0.0	3.0	8.0
13	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	136.6	127.2	127.4	158.3	316.5	468.8	438.1	352.4	413.5	680.1	752.8	717.6	951.5	713.8	526.6	463.0

Table 4-3.1. The estimated number of lake whitefish caught in gill nets in management area 4-3. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	100	300	498	0	0	0	0	0	0	0	0	0	0	0	0	0
3	1,801	2,848	1,744	308	347	87	196	0	0	0	0	0	0	0	0	0
4	34,625	17,612	20,510	11,697	6,584	1,050	589	635	0	158	556	294	0	556	0	0
5	29,321	32,526	19,430	25,446	17,443	31,310	11,983	6,353	0	2,366	5,285	587	1,110	2,597	1,393	0
6	4,503	10,417	17,520	18,161	30,496	38,395	37,323	14,929	8,177	15,143	15,019	11,747	6,504	9,644	7,892	793
7	1,401	2,323	5,729	12,723	12,822	20,028	30,055	34,305	16,354	26,342	24,754	32,599	17,292	21,514	20,426	7,934
8	1,101	674	996	5,335	8,317	6,559	8,250	14,929	26,936	33,282	28,370	38,179	30,142	31,530	25,997	11,107
9	1,101	749	332	1,334	3,696	1,662	1,964	4,447	14,430	22,398	21,138	22,026	23,161	19,289	7,892	7,934
10	1,101	974	332	923	693	525	2,357	2,224	4,810	7,414	13,629	9,104	11,581	8,532	5,571	10,314
11	200	375	166	410	809	0	589	318	481	2,208	1,669	881	2,697	2,968	464	793
12	0	75	83	410	347	87	196	318	0	315	556	587	635	185	0	793
13	0	0	0	103	116	0	0	318	0	158	0	0	0	0	0	0
14	0	0	0	0	116	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	75,253	68,874	67,341	76,852	81,784	99,703	93,505	78,776	71,188	109,783	110,977	116,005	93,122	96,815	69,633	39,668
Mean Age	4.78	5.05	5.16	5.83	6.24	6.07	6.56	7.07	7.90	7.83	7.84	7.88	8.25	7.95	7.71	8.62

Table 4-3.2. CPUE (number/km) for lake whitefish caught in gill nets in management area 4-3. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.1	0.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	1.7	2.9	1.7	0.3	0.4	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	31.8	18.0	19.8	11.2	7.3	1.1	0.6	0.8	0.0	0.1	0.5	0.2	0.0	0.4	0.0	0.0
5	26.9	33.2	18.8	24.3	19.3	32.8	12.5	8.0	0.0	1.7	4.5	0.3	0.8	1.8	1.5	0.0
6	4.1	10.6	16.9	17.3	33.8	40.2	38.9	18.7	11.4	10.7	12.7	6.6	4.9	6.5	8.5	1.5
7	1.3	2.4	5.5	12.1	14.2	21.0	31.3	43.1	22.7	18.7	20.9	18.3	12.9	14.6	22.1	14.6
8	1.0	0.7	1.0	5.1	9.2	6.9	8.6	18.7	37.4	23.6	23.9	21.4	22.5	21.3	28.1	20.4
9	1.0	0.8	0.3	1.3	4.1	1.7	2.0	5.6	20.0	15.9	17.8	12.4	17.3	13.1	8.5	14.6
10	1.0	1.0	0.3	0.9	0.8	0.5	2.5	2.8	6.7	5.3	11.5	5.1	8.6	5.8	6.0	18.9
11	0.2	0.4	0.2	0.4	0.9	0.0	0.6	0.4	0.7	1.6	1.4	0.5	2.0	2.0	0.5	1.5
12	0.0	0.1	0.1	0.4	0.4	0.1	0.2	0.4	0.0	0.2	0.5	0.3	0.5	0.1	0.0	1.5
13	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.4	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	69.0	70.3	65.0	73.3	90.6	104.3	97.5	98.9	98.9	77.8	93.6	65.2	69.5	65.5	75.2	72.8

Table 4-4.1. The estimated number of lake whitefish caught in gill nets in management area 4-4. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	2,048	210	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	11,152	4,412	0	2,468	577	0	0	0	0	0	0	0	0	0	0	0
3	8,193	4,202	1,809	7,280	961	410	1,938	0	0	0	0	0	0	0	0	0
4	148,165	39,286	51,686	25,541	11,343	4,097	5,168	0	1,775	0	0	3,609	2,909	0	0	0
5	113,343	171,642	76,366	109,813	76,322	42,197	35,851	1,708	1,775	1,973	20,879	3,609	0	1,438	0	731
6	38,008	57,774	105,957	51,451	66,422	111,432	172,473	14,687	41,718	12,822	27,839	7,219	17,453	23,009	20,003	9,500
7	9,331	22,269	35,534	36,522	30,471	55,306	148,895	72,410	119,829	63,122	34,799	61,360	52,359	37,389	40,007	40,921
8	3,869	4,202	18,219	10,858	19,417	20,074	51,677	44,402	135,807	104,547	48,718	93,845	87,264	64,712	36,006	39,460
9	1,821	1,471	4,781	3,208	6,633	4,097	10,658	7,514	47,044	71,999	125,276	79,408	66,903	80,530	17,603	32,883
10	1,593	630	2,843	1,851	2,403	1,639	3,230	342	7,989	12,822	48,718	32,485	52,359	46,017	8,801	20,461
11	455	420	1,680	494	577	410	323	683	888	3,945	0	0	5,818	15,818	1,600	5,846
12	910	210	775	864	96	0	323	0	0	0	0	0	0	8,628	0	2,923
13	0	0	388	0	384	0	323	0	888	0	0	3,609	0	0	0	2,192
14	0	0	0	0	0	410	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	338,890	306,728	300,039	250,348	215,606	240,070	430,859	141,745	357,713	271,229	306,230	285,146	285,063	277,540	124,020	154,916
Mean Age	4.66	5.22	5.76	5.56	6.00	6.28	6.58	7.32	7.59	8.05	8.23	8.22	8.32	8.60	7.68	8.33

Table 4-4.2. CPUE (number/km) for lake whitefish caught in gill nets in management area 4-4. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	1.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	9.3	3.8	0.0	2.9	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	6.8	3.6	1.4	8.7	1.0	0.6	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	123.7	33.9	39.5	30.5	11.8	5.8	5.6	0.0	8.1	0.0	0.0	2.2	1.7	0.0	0.0	0.0
5	94.6	148.2	58.3	131.2	79.6	60.0	38.8	2.2	8.1	2.6	11.7	2.2	0.0	0.7	0.0	0.9
6	31.7	49.9	80.9	61.5	69.3	158.5	186.5	18.9	189.2	16.8	15.6	4.3	9.9	11.4	23.3	11.3
7	7.8	19.2	27.1	43.6	31.8	78.7	161.0	93.0	543.5	82.5	19.4	36.8	29.8	18.5	46.7	48.8
8	3.2	3.6	13.9	13.0	20.3	28.6	55.9	57.0	616.0	136.6	27.2	56.3	49.6	32.0	42.0	47.1
9	1.5	1.3	3.7	3.8	6.9	5.8	11.5	9.6	213.4	94.1	70.0	47.7	38.1	39.8	20.5	39.2
10	1.3	0.5	2.2	2.2	2.5	2.3	3.5	0.4	36.2	16.8	27.2	19.5	29.8	22.7	10.3	24.4
11	0.4	0.4	1.3	0.6	0.6	0.6	0.3	0.9	4.0	5.2	0.0	0.0	3.3	7.8	1.9	7.0
12	0.8	0.2	0.6	1.0	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	4.3	0.0	3.5
13	0.0	0.0	0.3	0.0	0.4	0.0	0.3	0.0	4.0	0.0	0.0	2.2	0.0	0.0	0.0	2.6
14	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	283.0	264.9	229.1	299.2	224.9	341.4	465.9	182.0	1,622.5	354.3	171.1	171.1	162.1	137.2	144.6	184.7

Table 4-5.1. The estimated number of lake whitefish caught in gill nets in management area 4-5. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	21,487	8,821	549	11,175	4,447	2,745	783	1,147	14,779	0	0	0	0	0	0	0
2	38,497	46,988	32,950	4,030	19,722	20,127	13,318	2,867	37,686	7,591	15,197	0	2,651	5,596	0	4,193
3	118,178	54,189	20,136	9,709	2,320	3,476	8,356	1,147	6,650	12,146	25,645	2,516	7,953	30,311	0	1,398
4	72,966	193,711	252,252	98,007	36,158	14,638	12,012	4,014	5,173	759	6,649	15,095	7,069	6,995	1,309	4,659
5	123,997	59,590	132,350	193,999	198,771	100,086	60,843	24,658	29,558	21,255	19,946	22,642	42,416	35,907	26,175	38,204
6	30,589	87,134	37,344	75,841	227,001	248,660	193,758	68,239	99,757	119,941	77,886	80,505	136,970	128,238	152,861	161,669
7	18,055	35,826	45,398	31,142	73,669	152,050	270,008	205,865	180,302	161,692	141,525	197,908	186,455	193,056	246,568	260,440
8	29,097	23,584	19,221	17,586	31,711	62,577	121,425	270,663	232,029	192,816	208,013	187,006	136,970	174,403	137,942	145,828
9	34,767	25,564	15,194	15,388	16,049	22,140	41,259	129,024	158,134	192,057	197,565	125,789	78,647	103,057	47,115	53,579
10	7,908	20,883	12,448	7,694	9,281	10,612	12,534	59,064	44,337	75,912	76,936	46,123	37,114	48,964	12,040	16,773
11	2,387	4,141	7,322	3,481	5,414	5,855	5,745	11,469	15,518	25,810	23,746	11,740	5,302	6,062	2,617	932
12	298	720	915	1,466	2,320	2,379	1,567	5,734	7,389	4,555	950	1,677	884	1,865	523	0
13	149	0	0	550	580	366	522	1,147	0	0	0	0	0	466	0	0
14	0	0	183	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	498,377	561,150	576,262	470,067	627,443	645,710	742,131	785,038	831,312	814,533	794,058	691,000	642,432	734,919	627,151	687,674
Mean Age	4.68	4.98	4.94	5.32	5.82	6.31	6.76	7.80	7.36	7.83	7.78	7.65	7.22	7.26	7.12	7.04

Table 4-5.2. CPUE (number/km) for lake whitefish caught in gill nets in management area 4-5. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	7.6	3.4	0.2	5.9	1.7	1.1	0.3	0.4	4.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	13.6	17.8	13.1	2.1	7.4	8.1	5.2	1.0	11.9	2.2	3.8	0.0	0.8	1.6	0.0	1.1
3	41.7	20.6	8.0	5.1	0.9	1.4	3.3	0.4	2.1	3.5	6.4	0.7	2.5	8.6	0.0	0.4
4	25.7	73.6	100.6	51.8	13.5	5.9	4.7	1.3	1.6	0.2	1.7	4.1	2.2	2.0	0.5	1.2
5	43.7	22.6	52.8	102.6	74.4	40.2	23.7	8.3	9.4	6.1	5.0	6.1	13.3	10.2	9.8	10.1
6	10.8	33.1	14.9	40.1	85.0	99.9	75.4	22.9	31.6	34.6	19.5	21.6	43.0	36.3	57.2	42.9
7	6.4	13.6	18.1	16.5	27.6	61.1	105.0	69.2	57.0	46.6	35.4	53.1	58.5	54.6	92.2	69.0
8	10.3	9.0	7.7	9.3	11.9	25.1	47.2	91.0	73.4	55.5	52.0	50.2	43.0	49.3	51.6	38.7
9	12.3	9.7	6.1	8.1	6.0	8.9	16.0	43.4	50.0	55.3	49.3	33.8	24.7	29.1	17.6	14.2
10	2.8	7.9	5.0	4.1	3.5	4.3	4.9	19.9	14.0	21.9	19.2	12.4	11.6	13.8	4.5	4.4
11	0.8	1.6	2.9	1.8	2.0	2.4	2.2	3.9	4.9	7.4	5.9	3.2	1.7	1.7	1.0	0.2
12	0.1	0.3	0.4	0.8	0.9	1.0	0.6	1.9	2.3	1.3	0.2	0.5	0.3	0.5	0.2	0.0
13	0.1	0.0	0.0	0.3	0.2	0.1	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
14	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	175.8	213.2	229.9	248.5	235.0	259.4	288.7	263.9	263.0	234.6	198.3	185.5	201.6	207.8	234.5	182.3

Table 4-5.21. The estimated number of lake whitefish caught in trap nets in management area 4-5. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	1,275	526	0	0	890	235	0	0	0	0	0	0	220	0	0	0
3	11,476	11,759	12,986	2,498	4,449	1,883	2,583	0	1,285	2,412	1,169	2,808	0	0	177	0
4	4,463	9,167	57,459	38,903	19,576	13,768	12,516	9,147	3,855	5,790	4,674	11,545	3,296	0	1,062	0
5	3,734	1,691	19,480	40,687	33,146	29,302	12,715	9,563	13,280	13,027	8,959	5,616	9,008	2,118	2,833	373
6	1,730	2,217	7,473	13,741	12,791	19,652	34,568	4,989	9,424	15,439	11,686	8,736	10,106	4,501	10,445	1,492
7	638	1,352	7,228	5,889	4,227	7,061	20,661	14,968	11,995	16,404	15,191	16,849	11,864	9,266	11,153	1,604
8	1,366	1,165	5,513	2,855	2,002	4,001	7,152	14,136	13,280	13,992	18,308	9,985	6,811	7,943	5,134	1,567
9	2,095	601	2,205	1,606	1,446	2,824	1,391	2,910	7,283	5,790	10,128	7,176	5,493	2,912	1,416	485
10	364	263	2,205	1,963	1,335	1,059	795	1,663	2,570	2,895	5,453	1,248	879	2,118	177	149
11	273	75	980	714	667	588	795	416	1,285	965	1,169	312	659	265	0	0
12	0	113	0	178	111	118	397	0	0	0	390	0	0	0	0	0
13	0	38	0	0	111	0	0	0	428	0	390	0	439	265	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	27,414	28,965	115,530	109,034	80,752	80,491	93,571	57,792	64,686	76,713	77,515	64,275	48,774	29,388	32,398	5,671
Mean Age	4.55	4.29	4.83	5.11	5.18	5.60	6.03	6.57	6.85	6.60	7.20	6.43	6.73	7.48	6.64	7.13

Table 4-5.22. CPUE (number/net lift) for lake whitefish caught in trap nets in management area 4-5. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	8.7	2.7	0.0	0.0	7.1	2.3	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0
3	78.3	60.1	46.1	12.5	35.5	18.8	19.7	0.0	11.3	17.3	9.6	18.2	0.0	0.0	2.0	0.0
4	30.5	46.8	203.8	195.2	156.1	137.1	95.4	133.7	34.0	41.6	38.6	74.8	30.0	0.0	12.3	0.0
5	25.5	8.6	69.1	204.1	264.2	291.8	96.9	139.7	117.0	93.5	74.0	36.4	82.1	14.9	32.7	13.3
6	11.8	11.3	26.5	68.9	102.0	195.7	263.6	72.9	83.0	110.8	96.5	56.6	92.1	31.6	120.5	53.3
7	4.4	6.9	25.6	29.5	33.7	70.3	157.5	218.7	105.7	117.8	125.4	109.1	108.2	65.1	128.7	57.3
8	9.3	6.0	19.6	14.3	16.0	39.8	54.5	206.6	117.0	100.4	151.2	64.7	62.1	55.8	59.2	56.0
9	14.3	3.1	7.8	8.1	11.5	28.1	10.6	42.5	64.1	41.6	83.6	46.5	50.1	20.5	16.3	17.3
10	2.5	1.3	7.8	9.8	10.6	10.5	6.1	24.3	22.6	20.8	45.0	8.1	8.0	14.9	2.0	5.3
11	1.9	0.4	3.5	3.6	5.3	5.9	6.1	6.1	11.3	6.9	9.6	2.0	6.0	1.9	0.0	0.0
12	0.0	0.6	0.0	0.9	0.9	1.2	3.0	0.0	0.0	0.0	3.2	0.0	0.0	0.0	0.0	0.0
13	0.0	0.2	0.0	0.0	0.9	0.0	0.0	0.0	3.8	0.0	3.2	0.0	4.0	1.9	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	187.1	148.0	409.7	547.0	643.8	801.7	713.4	844.6	569.8	550.7	640.1	416.3	444.6	206.5	373.8	202.6

Table 4-7.1. The estimated number of lake whitefish caught in gill nets in management area 4-7. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0	0	0	0	0	0	0			0	0			0	0	0
2	0	0	0	0	0	0	139			0	0			0	0	0
3	843	1,522	1,572	325	0	25	0			0	0			0	0	0
4	36,944	12,175	16,473	4,321	4,209	279	0	N	N	0	0	N	N	0	0	0
5	24,583	32,554	26,656	15,984	21,958	1,853	2,772	O	O	0	0	O	O	0	55	0
6	4,636	7,808	14,526	10,269	12,992	2,335	13,585			1,385	3,365			1,582	165	188
7	1,545	2,183	4,343	6,412	6,282	787	12,753			4,570	3,365			2,532	936	1,128
8	421	529	1,498	1,859	2,623	152	4,297	D	D	11,771	3,365	D	D	2,848	441	1,128
9	843	198	599	651	732	25	693	A	A	7,201	13,460	A	A	2,848	771	564
10	281	198	150	93	305	0	554	T	T	1,662	6,730	T	T	949	165	564
11	0	66	300	46	0	0	0	A	A	0	0	A	A	633	55	188
12	0	66	0	0	0	0	0			138	0			0	0	0
13	0	66	0	0	0	0	0			0	0			0	0	0
14	0	0	0	0	0	0	0			0	0			0	0	0
15	0	0	0	0	0	0	0			0	0			0	0	0
Total	70,096	57,366	66,116	39,960	49,099	5,456	34,793	0	0	26,726	30,285	0	0	11,393	2,588	3,760
Mean Age	4.65	5.03	5.20	5.68	5.69	5.76	6.64	--	--	8.14	8.56	--	--	8.08	7.94	8.20

Table 4-7.2. CPUE (number/km) for lake whitefish caught in gill nets in management area 4-7. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0			0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	1.6			0.0	0.0			0.0	0.0	0.0
3	2.1	3.7	3.1	0.7	0.0	0.9	0.0			0.0	0.0			0.0	0.0	0.0
4	92.1	29.2	32.4	9.6	6.0	9.6	0.0	N	N	0.0	0.0	N	N	0.0	0.0	0.0
5	61.3	78.1	52.4	35.7	31.1	63.9	31.5	O	O	0.0	0.0	O	O	0.0	0.7	0.0
6	11.6	18.7	28.5	22.9	18.4	80.5	154.2			14.6	9.6			10.4	2.1	1.8
7	3.9	5.2	8.5	14.3	8.9	27.1	144.7			48.2	9.6			16.7	11.7	11.0
8	1.1	1.3	2.9	4.1	3.7	5.3	48.8	D	D	124.2	9.6	D	D	18.7	5.5	11.0
9	2.1	0.5	1.2	1.5	1.0	0.9	7.9	A	A	76.0	38.6	A	A	18.7	9.6	5.5
10	0.7	0.5	0.3	0.2	0.4	0.0	6.3	T	T	17.5	19.3	T	T	6.2	2.1	5.5
11	0.0	0.2	0.6	0.1	0.0	0.0	0.0	A	A	0.0	0.0	A	A	4.2	0.7	1.8
12	0.0	0.2	0.0	0.0	0.0	0.0	0.0			1.5	0.0			0.0	0.0	0.0
13	0.0	0.2	0.0	0.0	0.0	0.0	0.0			0.0	0.0			0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0			0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0			0.0	0.0	0.0
Total	174.7	137.7	129.9	89.1	69.4	188.2	394.8	0.0	0.0	282.0	86.8	0.0	0.0	75.0	32.3	36.6

Table 5-1.1. The estimated number of lake whitefish caught in gill nets in management area 5-1. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1						0	0	0	0	0	0	0	0	0	0	0
2						843	0	0	0	0	324	0	0	0	0	0
3						2,108	2,504	309	0	38	1,376	0	0	0	76	0
4	N	N	N	N	N	843	3,756	2,471	1,548	607	324	640	0	264	680	162
5	O	O	O	O	O	18,126	9,859	8,339	12,384	3,034	1,538	853	385	1,318	2,192	767
6						15,175	10,798	1,544	6,966	5,158	5,180	2,347	256	1,055	4,685	2,746
7						6,745	3,443	9,574	3,096	5,310	5,827	4,337	1,282	3,164	4,610	3,554
8	D	D	D	D	D	843	939	5,559	9,288	3,413	6,555	4,622	2,308	6,064	3,779	4,321
9	A	A	A	A	A	843	156	1,235	2,322	3,300	5,261	4,906	2,821	6,328	4,232	4,644
10	T	T	T	T	T	0	0	927	1,548	1,479	4,047	2,773	2,308	3,955	4,081	5,815
11	A	A	A	A	A	0	0	309	0	417	1,214	711	2,693	2,373	1,889	6,058
12						0	0	0	0	114	81	142	898	1,318	1,285	3,473
13						0	0	309	0	0	0	0	0	0	151	1,373
14						0	0	0	0	38	0	0	0	0	76	485
15						0	0	0	0	38	0	0	0	0	0	81
Total	0	0	0	0	0	45,526	31,456	30,575	37,151	22,946	31,725	21,332	12,951	25,838	27,734	33,479
Mean Age	--	--	--	--	--	5.59	5.39	6.58	6.52	7.18	7.57	7.95	9.25	8.63	8.03	9.39

Table 5-1.2. CPUE (number/km) for lake whitefish caught in gill nets in management area 5-1. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2						1.9	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0
3						4.7	6.1	0.4	0.0	0.1	3.0	0.0	0.0	0.0	0.1	0.0
4	N	N	N	N	N	1.9	9.2	3.5	2.8	1.4	0.7	1.4	0.0	0.5	1.2	0.2
5	O	O	O	O	O	40.8	24.1	11.8	22.2	6.8	3.4	1.9	1.1	2.5	3.8	0.9
6						34.2	26.4	2.2	12.5	11.6	11.4	5.3	0.7	2.0	8.1	3.2
7						15.2	8.4	13.6	5.6	12.0	12.9	9.8	3.6	6.0	7.9	4.1
8	D	D	D	D	D	1.9	2.3	7.9	16.7	7.7	14.5	10.4	6.5	11.5	6.5	5.0
9	A	A	A	A	A	1.9	0.4	1.8	4.2	7.4	11.6	11.1	8.0	12.0	7.3	5.4
10	T	T	T	T	T	0.0	0.0	1.3	2.8	3.3	8.9	6.3	6.5	7.5	7.0	6.7
11	A	A	A	A	A	0.0	0.0	0.4	0.0	0.9	2.7	1.6	7.6	4.5	3.2	7.0
12						0.0	0.0	0.0	0.0	0.3	0.2	0.3	2.5	2.5	2.2	4.0
13						0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.6
14						0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.6
15						0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
Total	0.0	0.0	0.0	0.0	0.0	102.6	76.8	43.4	66.7	51.7	70.0	48.1	36.7	49.1	47.7	38.7

Table 5-2.1. The estimated number of lake whitefish caught in gill nets in management area 5-2. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0	0	0	0	0	0	0		0	0	0		0	0	0	
2	0	5,821	453	324	24	204	0		0	0	0		0	0	0	
3	437	4,365	2,444	8,583	1,119	5,019	3,708		0	0	1,247		0	76	0	
4	6,548	1,455	1,584	4,513	5,231	2,448	4,470	N	894	280	1,871	N	534	76	44	N
5	0	243	407	619	3,212	5,876	2,235	O	2,682	1,401	2,494	O	411	5,286	618	O
6	146	0	498	88	681	2,163	3,556		1,753	2,615	3,741		329	1,133	2,118	
7	146	0	45	236	97	286	2,489		2,407	1,121	2,494		1,273	1,435	485	
8	0	0	91	88	49	82	508	D	4,435	747	624	D	1,951	2,341	927	D
9	0	0	136	0	122	41	102	A	1,891	2,895	0	A	2,835	2,945	2,250	A
10	0	0	272	59	24	82	51	T	481	934	0	T	1,746	1,586	1,147	T
11	0	0	91	118	24	41	0	A	69	187	0	A	1,089	680	838	A
12	0	243	91	59	0	0	0		103	280	0		288	831	353	
13	0	0	45	29	0	41	51		34	0	0		41	151	88	
14	0	0	0	0	24	0	51		69	0	0		0	0	44	
15	0	0	45	29	0	41	0		0	0	0		21	0	0	
Total	7,276	12,126	6,200	14,747	10,609	16,322	17,220	0	14,818	10,458	12,471	0	10,517	16,538	8,912	0
Mean Age	4.04	2.86	4.50	3.65	4.48	4.48	4.98	--	7.09	7.50	5.50	--	8.55	7.52	8.27	--

Table 5-2.2. CPUE (number/km) for lake whitefish caught in gill nets in management area 5-2. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
2	0.0	64.0	6.1	2.4	0.2	0.9	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
3	7.4	48.0	32.8	64.5	7.6	22.8	18.0		0.0	0.0	3.1		0.0	0.2	0.0	
4	111.0	16.0	21.3	33.9	35.5	11.1	21.7	N	2.8	0.9	4.6	N	2.0	0.2	0.2	N
5	0.0	2.7	5.5	4.7	21.8	26.7	10.8	O	8.3	4.4	6.2	O	1.6	16.3	3.0	O
6	2.5	0.0	6.7	0.7	4.6	9.8	17.3		5.4	8.2	9.3		1.2	3.5	10.2	
7	2.5	0.0	0.6	1.8	0.7	1.3	12.1		7.4	3.5	6.2		4.8	4.4	2.3	
8	0.0	0.0	1.2	0.7	0.3	0.4	2.5	D	13.7	2.4	1.5	D	7.4	7.2	4.5	D
9	0.0	0.0	1.8	0.0	0.8	0.2	0.5	A	5.8	9.1	0.0	A	10.8	9.1	10.9	A
10	0.0	0.0	3.6	0.4	0.2	0.4	0.2	T	1.5	2.9	0.0	T	6.6	4.9	5.5	T
11	0.0	0.0	1.2	0.9	0.2	0.2	0.0	A	0.2	0.6	0.0	A	4.1	2.1	4.0	A
12	0.0	2.7	1.2	0.4	0.0	0.0	0.0		0.3	0.9	0.0		1.1	2.6	1.7	
13	0.0	0.0	0.6	0.2	0.0	0.2	0.2		0.1	0.0	0.0		0.2	0.5	0.4	
14	0.0	0.0	0.0	0.0	0.2	0.0	0.2		0.2	0.0	0.0		0.0	0.0	0.2	
15	0.0	0.0	0.6	0.2	0.0	0.2	0.0		0.0	0.0	0.0		0.1	0.0	0.0	
Total	123.4	133.3	83.3	110.9	72.0	74.2	83.6	0.0	45.7	32.9	30.9	0.0	39.9	51.0	43.0	0.0

Table 5-3.1. The estimated number of lake whitefish caught in gill nets in management area 5-3. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	30,838		0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	15,419		0	0	66	155	0	0	0	0	0	0	0	0	0	0
3	0		16,443	31,895	66	310	0	0	0	0	0	0	0	0	0	0
4	0	N	0	3,189	4,599	1,552	1,050	1,625	1,188	90	0	0	0	0	0	0
5	0	O	0	0	4,796	13,348	5,774	4,501	6,890	5,659	2,390	0	2,252	3,015	0	1,512
6	0		0	0	3,285	6,829	22,045	5,626	6,890	4,312	10,358	2,993	1,126	8,743	4,938	7,559
7	0		0	0	920	1,086	4,724	20,005	10,216	2,874	2,789	5,130	6,192	2,110	4,067	13,607
8	0	D	0	0	460	310	1,470	3,626	18,293	3,503	2,789	2,993	6,755	3,618	3,195	2,376
9	0	A	0	0	394	155	525	875	1,901	5,030	3,984	4,275	5,629	3,919	4,067	1,080
10	0	T	0	0	329	155	315	250	713	898	5,577	2,565	3,940	3,618	2,324	648
11	0	A	0	0	197	0	0	125	0	0	797	855	563	904	581	0
12	0		0	0	66	155	105	125	0	90	0	428	1,689	1,809	290	216
13	0		0	0	0	0	0	0	0	90	0	0	0	301	290	216
14	0		0	0	66	0	105	0	0	0	0	0	0	0	0	0
15	0		0	0	0	0	0	0	0	0	0	0	0	0	0	216
Total	46,257	0	16,443	35,084	15,243	24,058	36,112	36,759	46,089	22,546	28,684	19,238	28,145	28,039	19,754	27,429
Mean Age	1.33	--	3.00	3.09	5.46	5.41	6.11	6.67	7.00	7.06	7.54	8.13	8.24	7.78	7.96	7.00

Table 5-3.2. CPUE (number/km) for lake whitefish caught in gill nets in management area 5-3. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	350.6		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	175.3		0.0	0.0	0.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0		343.5	340.4	0.3	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	N	0.0	34.0	17.9	4.0	2.5	2.6	1.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	O	0.0	0.0	18.6	34.8	13.6	7.2	6.8	12.4	3.8	0.0	4.2	4.6	0.0	3.4
6	0.0		0.0	0.0	12.8	17.8	51.9	9.0	6.8	9.5	16.3	5.6	2.1	13.3	10.1	17.0
7	0.0		0.0	0.0	3.6	2.8	11.1	32.1	10.1	6.3	4.4	9.6	11.7	3.2	8.3	30.7
8	0.0	D	0.0	0.0	1.8	0.8	3.5	5.8	18.0	7.7	4.4	5.6	12.7	5.5	6.5	5.4
9	0.0	A	0.0	0.0	1.5	0.4	1.2	1.4	1.9	11.0	6.3	8.0	10.6	6.0	8.3	2.4
10	0.0	T	0.0	0.0	1.3	0.4	0.7	0.4	0.7	2.0	8.8	4.8	7.4	5.5	4.7	1.5
11	0.0	A	0.0	0.0	0.8	0.0	0.0	0.2	0.0	0.0	1.3	1.6	1.1	1.4	1.2	0.0
12	0.0		0.0	0.0	0.3	0.4	0.2	0.2	0.0	0.2	0.0	0.8	3.2	2.8	0.6	0.5
13	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.5	0.6	0.5
14	0.0		0.0	0.0	0.3	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Total	525.9	0.0	343.5	374.4	59.2	62.8	85.0	58.9	45.4	49.5	45.1	36.0	53.0	42.6	40.3	61.8

Table 5-4.1. The estimated number of lake whitefish caught in gill nets in management area 5-4. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1				0		0	0	0	0	0	0	0	0			
2				0		0	0	0	0	0	0	0	0			
3				0		0	0	0	0	0	3	11	0			
4	N	N	N	4,773	N	0	0	478	222	0	9	886	418	N	N	N
5	O	O	O	1,507	O	753	730	1,004	1,554	0	15	246	1,784	O	O	O
6				0		1,923	2,555	1,577	370	0	18	64	276			
7				0		1,589	913	860	814	0	27	299	134			
8	D	D	D	0	D	84	183	1,386	1,110	0	9	278	126	D	D	D
9	A	A	A	0	A	0	183	621	444	0	37	128	118	A	A	A
10	T	T	T	0	T	0	0	239	370	0	24	235	142	T	T	T
11	A	A	A	0	A	0	0	0	370	0	12	171	87	A	A	A
12				0		0	0	48	0	2,055	6	53	24			
13				0		0	0	0	0	0	3	0	8			
14				0		0	0	48	0	0	0	0	0			
15				0		0	0	0	0	0	0	0	0			
Total	0	0	0	6,280	0	4,348	4,563	6,262	5,253	2,055	164	2,370	3,117	0	0	0
Mean Age	--	--	--	4.24	--	6.23	6.24	6.82	7.08	12.00	8.00	6.55	5.78	--	--	--

Table 5-4.2. CPUE (number/km) for lake whitefish caught in gill nets in management area 5-4. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1				0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
2				0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
3				0.0		0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.0			
4	N	N	N	32.1	N	0.0	0.0	4.9	2.7	0.0	1.0	17.7	6.1	N	N	N
5	O	O	O	10.2	O	9.7	14.1	10.4	18.7	0.0	1.6	4.9	25.9	O	O	O
6				0.0		24.7	49.3	16.3	4.4	0.0	1.9	1.3	4.0			
7				0.0		20.4	17.6	8.9	9.8	0.0	2.9	6.0	1.9			
8	D	D	D	0.0	D	1.1	3.5	14.3	13.3	0.0	1.0	5.5	1.8	D	D	D
9	A	A	A	0.0	A	0.0	3.5	6.4	5.3	0.0	3.8	2.6	1.7	A	A	A
10	T	T	T	0.0	T	0.0	0.0	2.5	4.4	0.0	2.6	4.7	2.1	T	T	T
11	A	A	A	0.0	A	0.0	0.0	0.0	4.4	0.0	1.3	3.4	1.3	A	A	A
12				0.0		0.0	0.0	0.5	0.0	41.8	0.6	1.1	0.3			
13				0.0		0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.1			
14				0.0		0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0			
15				0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Total	0.0	0.0	0.0	42.3	0.0	55.8	88.0	64.8	63.1	41.8	17.3	47.3	45.2	0.0	0.0	0.0

Table 5-5.1. The estimated number of lake whitefish caught in gill nets in management area 5-5. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1				0		0	0	0	0	0	0	0	0			
2				0		0	0	0	0	88	0	0	0			
3				0		0	71	0	17	44	222	13	0			
4	N	N	N	4,638	N	153	964	725	198	220	496	3,172	787	N	N	N
5	O	O	O	3,289	O	766	1,856	1,836	3,036	1,320	1,111	1,093	4,354	O	O	O
6				337		4,292	3,319	1,836	2,079	1,936	1,334	661	648			
7				0		2,146	1,677	2,416	1,007	1,012	958	1,039	278			
8	D	D	D	84	D	307	571	1,981	594	836	222	945	371	D	D	D
9	A	A	A	0	A	0	36	242	578	836	513	432	324	A	A	A
10	T	T	T	0	T	0	71	97	132	880	376	553	232	T	T	T
11	A	A	A	0	A	0	0	0	50	264	222	297	139	A	A	A
12				0		0	0	0	0	88	34	175	139			
13				0		0	0	0	0	0	17	81	0			
14				0		0	0	0	0	0	17	13	0			
15				0		0	0	0	0	0	17	0	0			
Total	0	0	0	8,349	0	7,664	8,565	9,132	7,690	7,524	5,540	8,477	7,272	0	0	0
Mean Age	--	--	--	4.52	--	6.22	5.91	6.46	6.16	7.11	6.61	6.26	5.80	--	--	--

Table 5-5.2. CPUE (number/km) for lake whitefish caught in gill nets in management area 5-5. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1				0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
2				0.0		0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0			
3				0.0		0.0	0.8	0.0	0.1	0.3	2.3	0.1	0.0			
4	N	N	N	22.7	N	1.1	10.2	4.5	1.6	1.5	5.0	18.4	7.9	N	N	N
5	O	O	O	16.1	O	5.3	19.7	11.3	25.1	9.1	11.3	6.3	43.4	O	O	O
6				1.7		29.6	35.2	11.3	17.2	13.3	13.5	3.8	6.5			
7				0.0		14.8	17.8	14.9	8.3	6.9	9.7	6.0	2.8			
8	D	D	D	0.4	D	2.1	6.1	12.2	4.9	5.7	2.3	5.5	3.7	D	D	D
9	A	A	A	0.0	A	0.0	0.4	1.5	4.8	5.7	5.2	2.5	3.2	A	A	A
10	T	T	T	0.0	T	0.0	0.8	0.6	1.1	6.0	3.8	3.2	2.3	T	T	T
11	A	A	A	0.0	A	0.0	0.0	0.0	0.4	1.8	2.3	1.7	1.4	A	A	A
12				0.0		0.0	0.0	0.0	0.0	0.6	0.3	1.0	1.4			
13				0.0		0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.0			
14				0.0		0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0			
15				0.0		0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0			
Total	0.0	0.0	0.0	40.9	0.0	52.8	90.9	56.3	63.5	51.6	56.1	49.2	72.5	0.0	0.0	0.0

Table 5-6.1. The estimated number of lake whitefish caught in gill nets in management area 5-6. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0			0	0	0	0	0	0	0	0	0	0	0	0	0
2	0			0	73	21,366	61	109	0	0	0	0	0	0	0	0
3	469			240	146	1,187	307	109	0	0	0	0	345	0	0	0
4	0	N	N	0	4,540	1,187	920	1,254	2,324	980	537	1,137	691	102	99	0
5	0	O	O	0	3,148	8,309	8,522	1,799	7,138	10,943	2,684	379	5,873	1,432	594	855
6	0			0	1,025	5,935	17,167	2,780	2,905	7,350	5,189	1,517	2,418	2,149	5,448	2,564
7	0			0	146	3,561	2,085	7,741	3,735	3,103	716	4,929	2,073	307	1,981	4,914
8	0	D	D	0	73	1,187	1,226	981	7,221	1,960	1,073	3,033	3,800	614	693	427
9	0	A	A	0	0	0	61	273	332	6,043	716	1,327	345	819	396	0
10	0	T	T	0	0	0	61	0	332	653	1,431	1,896	345	409	396	427
11	0	A	A	0	0	0	0	0	83	327	0	758	0	614	396	214
12	0			0	0	0	0	0	0	163	0	0	1,036	512	99	0
13	0			0	0	0	0	0	0	163	0	0	0	102	99	0
14	0			0	0	0	0	0	0	0	0	0	0	0	0	0
15	0			0	0	0	0	0	0	0	0	0	0	0	0	0
Total	469	0	0	240	9,152	42,732	30,409	15,046	24,070	31,686	12,345	14,977	16,927	7,060	10,203	9,401
Mean Age	3.00	--	--	3.00	4.62	3.81	5.78	6.36	6.38	6.59	6.57	7.58	6.59	7.54	6.84	6.82

Table 5-6.2. CPUE (number/km) for lake whitefish caught in gill nets in management area 5-6. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0			0.0	0.3	63.3	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	134.9			143.6	0.6	3.5	0.7	0.3	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0
4	0.0	N	N	0.0	17.5	3.5	2.1	3.3	4.1	2.3	1.8	2.4	1.2	0.3	0.3	0.0
5	0.0	O	O	0.0	12.1	24.6	19.5	4.7	12.5	26.1	9.0	0.8	9.9	4.3	1.8	3.5
6	0.0			0.0	3.9	17.6	39.3	7.3	5.1	17.5	17.5	3.2	4.1	6.4	16.6	10.4
7	0.0			0.0	0.6	10.5	4.8	20.2	6.5	7.4	2.4	10.5	3.5	0.9	6.1	20.0
8	0.0	D	D	0.0	0.3	3.5	2.8	2.6	12.7	4.7	3.6	6.5	6.4	1.8	2.1	1.7
9	0.0	A	A	0.0	0.0	0.0	0.1	0.7	0.6	14.4	2.4	2.8	0.6	2.5	1.2	0.0
10	0.0	T	T	0.0	0.0	0.0	0.1	0.0	0.6	1.6	4.8	4.0	0.6	1.2	1.2	1.7
11	0.0	A	A	0.0	0.0	0.0	0.0	0.0	0.1	0.8	0.0	1.6	0.0	1.8	1.2	0.9
12	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	1.7	1.5	0.3	0.0
13	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.3	0.3	0.0
14	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	134.9	0.0	0.0	143.6	35.2	126.5	69.6	39.3	42.2	75.5	41.6	31.9	28.4	21.2	31.2	38.2

Table 5-7.1. The estimated number of lake whitefish caught in gill nets in management area 5-7. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0	0				0		0	0	0	0	0	0	0	0	0
2	0	0				135,102		0	0	163	0	0	0	0	0	0
3	0	104				0		0	189	163	0	0	0	0	23	0
4	2,833	1,450	N	N	N	0	N	114	2,646	980	712	659	101	42	209	0
5	729	2,693	O	O	O	0	O	1,083	5,859	10,614	5,089	2,371	5,433	1,865	372	264
6	533	1,450				0		1,624	6,048	11,920	10,686	1,976	2,918	3,858	5,043	3,382
7	28	518				0		1,852	2,268	3,919	7,836	6,849	5,332	890	1,789	6,896
8	84	311	D	D	D	0	D	1,054	3,591	1,306	1,934	3,820	4,829	1,060	442	1,449
9	28	104	A	A	A	0	A	427	1,890	1,470	1,730	2,239	2,415	805	395	220
10	0	207	T	T	T	0	T	171	378	816	1,221	922	503	127	139	88
11	0	104	A	A	A	0	A	85	189	1,143	509	922	1,006	170	23	88
12	0	0				0		57	189	816	305	263	503	42	23	0
13	0	0				0		0	0	327	102	132	101	42	0	0
14	0	0				0		0	0	0	0	132	201	0	0	0
15	0	0				0		0	0	163	0	0	0	0	0	0
Total	4,235	6,941	0	0	0	135,102	0	6,468	23,248	33,802	30,125	20,285	23,341	8,903	8,459	12,386
Mean Age	4.56	5.55	--	--	--	2.00	--	6.83	6.30	6.44	6.68	7.45	7.24	6.60	6.45	6.89

Table 5-7.2. CPUE (number/km) for lake whitefish caught in gill nets in management area 5-7. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0.0	0.0				0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0				1,063.7		0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	1.6				0.0		0.0	0.5	0.4	0.0	0.0	0.0	0.0	0.1	0.0
4	109.4	22.1	N	N	N	0.0	N	0.8	7.6	2.4	1.6	1.6	0.2	0.2	0.7	0.0
5	28.2	41.1	O	O	O	0.0	O	7.4	16.8	25.5	11.7	5.8	13.3	6.6	1.3	0.7
6	20.6	22.1				0.0		11.1	17.3	28.6	24.5	4.8	7.2	13.7	17.3	8.6
7	1.1	7.9				0.0		12.7	6.5	9.4	18.0	16.7	13.1	3.2	6.1	17.4
8	3.2	4.7	D	D	D	0.0	D	7.2	10.3	3.1	4.4	9.3	11.9	3.8	1.5	3.7
9	1.1	1.6	A	A	A	0.0	A	2.9	5.4	3.5	4.0	5.5	5.9	2.9	1.4	0.6
10	0.0	3.2	T	T	T	0.0	T	1.2	1.1	2.0	2.8	2.3	1.2	0.5	0.5	0.2
11	0.0	1.6	A	A	A	0.0	A	0.6	0.5	2.7	1.2	2.3	2.5	0.6	0.1	0.2
12	0.0	0.0				0.0		0.4	0.5	2.0	0.7	0.6	1.2	0.2	0.1	0.0
13	0.0	0.0				0.0		0.0	0.0	0.8	0.2	0.3	0.2	0.2	0.0	0.0
14	0.0	0.0				0.0		0.0	0.0	0.0	0.0	0.3	0.5	0.0	0.0	0.0
15	0.0	0.0				0.0		0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Total	163.5	105.9	0.0	0.0	0.0	1,063.7	0.0	44.4	66.5	81.2	69.2	49.6	57.3	31.7	29.0	31.3

Table 5-8.1. The estimated number of lake whitefish caught in gill nets in management area 5-8. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0	0	0	0	0	0	606	0	0	0	0	0	0	0	0	0
2	258	107	0	649	620	590	364	0	0	16	0	0	0	43	0	0
3	414	19	93	185	52	904	1,576	82	349	63	0	615	56	1,605	0	0
4	2,677	3,379	3,779	2,564	5,787	4,758	3,759	822	8,330	2,637	211	1,845	278	694	0	0
5	663	2,292	4,817	3,985	8,215	14,586	5,529	3,907	2,524	11,444	3,375	523	5,112	14,356	2,438	2,147
6	351	272	1,112	1,946	4,702	6,842	6,523	3,660	3,549	3,045	9,662	2,707	982	8,718	15,057	7,334
7	156	223	148	463	2,222	3,578	2,716	6,086	2,831	1,884	1,266	5,905	3,037	2,038	2,725	22,897
8	250	107	111	93	310	983	1,479	2,838	2,565	1,303	2,067	1,446	2,649	3,123	1,434	2,325
9	492	184	74	154	52	275	897	1,480	2,175	1,256	1,013	1,384	1,408	1,648	860	716
10	78	204	37	62	103	157	170	987	1,313	1,083	1,477	1,046	1,167	1,995	717	358
11	31	58	0	0	52	157	145	370	821	691	1,055	984	1,074	1,258	143	894
12	47	19	19	31	0	197	73	247	246	518	464	646	519	954	0	716
13	0	19	0	0	52	0	97	123	103	63	295	308	185	260	143	179
14	8	0	19	0	0	0	24	41	0	47	42	62	148	43	0	0
15	0	0	0	0	0	0	24	82	41	47	42	0	37	43	0	0
Total	5,425	6,884	10,207	10,133	22,166	33,030	23,983	20,726	24,846	24,097	20,969	17,470	16,650	38,780	23,517	37,565
Mean Age	5.01	4.96	4.86	4.94	5.17	5.39	5.54	6.95	6.25	6.14	7.02	7.29	7.36	6.41	6.44	7.04

Table 5-8.2. CPUE (number/km) for lake whitefish caught in gill nets in management area 5-8. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	7.3	2.3	0.0	7.3	1.5	1.8	1.6	0.0	0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.0
3	11.7	0.4	0.9	2.1	0.1	2.8	6.7	0.3	9.7	1.1	0.0	2.3	0.2	2.2	0.0	0.0
4	76.0	72.5	35.5	28.8	14.4	14.5	16.1	3.0	230.6	48.2	0.9	6.8	0.9	1.0	0.0	0.0
5	18.8	49.2	45.2	44.8	20.5	44.5	23.6	14.3	69.9	209.4	14.7	1.9	16.9	19.8	3.7	2.6
6	10.0	5.8	10.4	21.9	11.7	20.9	27.9	13.4	98.3	55.7	42.2	10.0	3.2	12.0	23.0	8.8
7	4.4	4.8	1.4	5.2	5.5	10.9	11.6	22.4	78.4	34.5	5.5	21.9	10.1	2.8	4.2	27.4
8	7.1	2.3	1.0	1.0	0.8	3.0	6.3	10.4	71.0	23.8	9.0	5.4	8.8	4.3	2.2	2.8
9	14.0	4.0	0.7	1.7	0.1	0.8	3.8	5.4	60.2	23.0	4.4	5.1	4.7	2.3	1.3	0.9
10	2.2	4.4	0.3	0.7	0.3	0.5	0.7	3.6	36.4	19.8	6.4	3.9	3.9	2.8	1.1	0.4
11	0.9	1.3	0.0	0.0	0.1	0.5	0.6	1.4	22.7	12.6	4.6	3.7	3.6	1.7	0.2	1.1
12	1.3	0.4	0.2	0.3	0.0	0.6	0.3	0.9	6.8	9.5	2.0	2.4	1.7	1.3	0.0	0.9
13	0.0	0.4	0.0	0.0	0.1	0.0	0.4	0.5	2.8	1.1	1.3	1.1	0.6	0.4	0.2	0.2
14	0.2	0.0	0.2	0.0	0.0	0.0	0.1	0.2	0.0	0.9	0.2	0.2	0.5	0.1	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	1.1	0.9	0.2	0.0	0.1	0.1	0.0	0.0
Total	153.9	147.8	95.9	113.9	55.2	100.7	102.6	76.1	687.9	440.8	91.5	64.8	55.1	50.8	35.9	45.0

Table 5-9.1. The estimated number of lake whitefish caught in gill nets in management area 5-9. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0	0			0	0	0	0	0	0	0	0	0	0	0	0
2	0	121			154	34	0	0	0	0	0	0	0	0	0	0
3	266	0			0	134	1,046	464	230	0	132	43	0	333	0	0
4	13,156	6,120	N	N	2,534	2,217	4,336	1,724	15,742	6,818	728	1,536	1,311	0	0	0
5	4,651	9,059	O	O	13,439	9,405	8,826	10,408	8,140	23,946	8,144	1,835	15,157	8,323	3,197	572
6	3,056	1,611			9,216	9,002	5,658	8,353	6,527	8,315	17,446	8,151	2,253	22,529	40,952	13,927
7	133	725			4,147	3,057	2,860	7,955	3,532	1,663	4,701	11,095	6,759	3,662	9,961	47,887
8	532	242	D	D	1,152	2,217	1,292	3,712	2,764	1,330	2,814	3,883	5,080	3,718	1,845	6,678
9	133	242	A	A	154	504	1,199	1,922	1,152	998	1,721	2,518	2,581	1,998	615	382
10	0	40	T	T	77	202	154	729	691	1,164	1,523	1,110	1,352	943	246	191
11	133	40	A	A	0	0	0	530	307	0	695	982	1,311	888	615	382
12	0	0			0	67	62	66	230	0	497	768	533	222	369	191
13	0	40			0	0	31	0	230	0	33	213	287	499	123	191
14	0	0			0	0	0	0	0	0	99	85	123	55	0	0
15	0	0			0	34	31	0	0	0	33	43	0	0	0	0
Total	22,060	18,240	0	0	30,872	26,871	25,494	35,864	39,548	44,234	38,567	32,262	36,745	43,170	57,924	70,400
Mean Age	4.66	4.95	--	--	5.61	5.86	5.60	6.33	5.48	5.42	6.50	7.17	6.68	6.49	6.34	6.95

Table 5-9.2. CPUE (number/km) for lake whitefish caught in gill nets in management area 5-9. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	1.2			0.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	1.9	0.0			0.0	0.7	6.8	2.0	1.0	0.0	0.5	0.1	0.0	1.1	0.0	0.0
4	91.6	62.3	N	N	12.2	11.7	28.1	7.2	68.8	35.5	2.6	4.6	4.1	0.0	0.0	0.0
5	32.4	92.2	O	O	64.5	49.6	57.1	43.8	35.6	124.7	29.5	5.4	47.7	27.5	10.8	1.6
6	21.3	16.4			44.3	47.5	36.6	35.1	28.5	43.3	63.3	24.2	7.1	74.4	138.8	37.9
7	0.9	7.4			19.9	16.1	18.5	33.5	15.4	8.7	17.1	32.9	21.3	12.1	33.8	130.3
8	3.7	2.5	D	D	5.5	11.7	8.4	15.6	12.1	6.9	10.2	11.5	16.0	12.3	6.3	18.2
9	0.9	2.5	A	A	0.7	2.7	7.8	8.1	5.0	5.2	6.2	7.5	8.1	6.6	2.1	1.0
10	0.0	0.4	T	T	0.4	1.1	1.0	3.1	3.0	6.1	5.5	3.3	4.3	3.1	0.8	0.5
11	0.9	0.4	A	A	0.0	0.0	0.0	2.2	1.3	0.0	2.5	2.9	4.1	2.9	2.1	1.0
12	0.0	0.0			0.0	0.4	0.4	0.3	1.0	0.0	1.8	2.3	1.7	0.7	1.3	0.5
13	0.0	0.4			0.0	0.0	0.2	0.0	1.0	0.0	0.1	0.6	0.9	1.6	0.4	0.5
14	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.3	0.4	0.2	0.0	0.0
15	0.0	0.0			0.0	0.2	0.2	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
Total	153.7	185.7	0.0	0.0	148.3	141.8	165.0	150.8	172.7	230.4	139.9	95.7	115.6	142.6	196.3	191.5

Table 6-1.1. The estimated number of lake whitefish caught in gill nets in management area 6-1. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	69	1,600	133	0	0	0	0	0	0	100	0	0	0	0	0	0
2	5,453	4,172	5,199	1,156	2,935	2,291	2,620	2,487	261	2,201	803	604	0	0	0	0
3	9,801	8,116	17,130	9,982	4,367	4,200	15,481	1,339	3,265	700	4,641	4,229	263	0	155	1,099
4	76,064	55,840	48,790	44,677	63,928	38,643	45,492	24,676	14,368	11,503	10,978	37,000	20,248	16,084	7,121	4,237
5	12,217	39,894	35,726	28,973	43,884	67,053	43,904	50,883	35,528	50,615	21,243	27,939	40,102	41,681	29,723	45,981
6	2,278	6,287	18,463	16,921	23,409	28,486	36,203	53,178	40,361	44,713	46,859	25,523	19,065	28,018	29,259	37,036
7	2,554	2,058	2,533	5,722	8,877	14,969	19,054	40,744	24,556	37,011	46,056	36,396	17,619	21,792	19,661	30,759
8	1,864	2,629	866	1,217	2,506	5,957	7,939	20,850	19,593	22,407	27,312	21,143	23,273	23,002	12,539	24,481
9	1,311	1,543	667	243	501	1,527	2,938	5,356	8,751	12,704	15,798	11,629	13,411	11,934	9,288	13,339
10	414	1,029	533	365	72	458	794	1,339	2,221	4,901	10,443	4,833	9,204	5,880	10,837	11,299
11	552	914	267	183	72	153	476	383	914	900	3,124	1,359	4,470	1,730	2,013	6,591
12	414	972	333	426	72	0	159	0	0	700	625	453	1,052	1,038	1,238	1,569
13	0	57	267	548	0	76	79	0	0	0	89	151	920	173	155	471
14	69	0	67	61	0	0	0	0	0	0	89	0	0	0	0	314
15	0	0	0	183	0	0	159	0	0	0	0	0	0	0	0	0
Total	113,061	125,110	130,974	110,658	150,622	163,814	175,298	201,235	149,819	188,457	188,060	171,258	149,628	151,331	121,989	177,176
Mean Age	4.25	4.61	4.53	4.80	4.80	5.20	5.20	5.96	6.19	6.34	6.80	6.15	6.63	6.46	6.74	6.88

Table 6-1.2. CPUE (number/km) for lake whitefish caught in gill nets in management area 6-1. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
2	2.3	1.6	1.8	0.5	1.5	1.2	1.2	1.0	0.1	1.3	0.3	0.2	0.0	0.0	0.0	0.0
3	4.1	3.1	5.9	4.2	2.2	2.2	7.3	0.5	1.8	0.4	1.9	1.3	0.1	0.0	0.1	0.4
4	32.2	21.0	16.9	18.7	32.5	20.3	21.3	9.7	8.0	7.0	4.5	11.4	7.0	5.3	2.7	1.4
5	5.2	15.0	12.4	12.1	22.3	35.3	20.6	20.0	19.9	31.0	8.7	8.6	13.9	13.8	11.2	14.8
6	1.0	2.4	6.4	7.1	11.9	15.0	17.0	20.9	22.6	27.4	19.2	7.9	6.6	9.2	11.0	11.9
7	1.1	0.8	0.9	2.4	4.5	7.9	8.9	16.0	13.7	22.6	18.9	11.2	6.1	7.2	7.4	9.9
8	0.8	1.0	0.3	0.5	1.3	3.1	3.7	8.2	10.9	13.7	11.2	6.5	8.1	7.6	4.7	7.9
9	0.6	0.6	0.2	0.1	0.3	0.8	1.4	2.1	4.9	7.8	6.5	3.6	4.7	3.9	3.5	4.3
10	0.2	0.4	0.2	0.2	0.0	0.2	0.4	0.5	1.2	3.0	4.3	1.5	3.2	1.9	4.1	3.6
11	0.2	0.3	0.1	0.1	0.0	0.1	0.2	0.2	0.5	0.6	1.3	0.4	1.6	0.6	0.8	2.1
12	0.2	0.4	0.1	0.2	0.0	0.0	0.1	0.0	0.0	0.4	0.3	0.1	0.4	0.3	0.5	0.5
13	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.1	0.2
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
15	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	47.8	47.1	45.5	46.2	76.5	86.2	82.1	79.1	83.7	115.3	77.0	52.8	51.9	49.9	46.0	56.9

Table 4-5.17. The estimated number of walleye caught in gill nets in management area 4-5. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	681	969	417	696	828	76	183	512	732	0	0	334	0	91	0	0
2	481	2,907	5,001	522	2,416	9,016	61	8,527	8,785	1,177	9,005	2,674	96	46	702	0
3	761	310	5,974	2,785	276	917	5,784	1,194	3,844	2,616	375	2,785	0	229	268	1,257
4	281	194	1,528	5,136	2,830	611	1,339	3,581	2,013	1,962	3,002	223	4,127	640	1,204	898
5	1,843	155	1,389	1,132	3,313	1,757	487	1,705	732	131	1,876	1,337	1,632	1,418	1,605	2,515
6	721	1,473	1,667	1,393	1,312	1,757	365	0	1,098	523	750	2,897	1,824	1,509	1,639	719
7	922	659	5,557	2,002	1,173	764	244	341	0	131	1,126	446	864	1,143	1,003	1,078
8	321	620	4,029	4,091	1,588	1,375	365	171	183	131	0	891	576	915	502	180
9	641	194	1,945	2,263	2,899	1,146	487	0	183	131	375	334	192	640	268	359
10	80	349	1,528	2,263	2,761	1,528	365	341	366	0	375	111	0	229	0	0
11	160	116	556	1,306	1,933	611	122	171	366	0	375	0	192	137	0	180
12	0	78	139	174	690	76	122	0	0	0	0	0	288	183	0	0
13	40	0	0	0	276	0	61	0	183	0	0	0	96	46	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	138	0	0	0	0	0	375	0	0	0	0	0
Total	6,933	8,023	29,729	23,763	22,434	19,637	9,984	16,542	18,486	6,800	17,635	12,033	9,886	7,225	7,191	7,185
Mean Age	5.26	4.38	5.49	6.35	6.78	4.70	4.40	3.21	3.32	3.67	3.96	4.44	5.56	6.54	5.33	5.35

Table 4-5.18. CPUE (number/km) for walleye caught in gill nets in management area 4-5. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	2.5	6.6	0.9	1.7	1.1	0.3	1.9	4.3	4.7	0.0	0.0	1.8	0.0	0.4	0.0	0.0
2	1.8	19.7	10.4	1.3	3.4	33.6	0.6	71.9	56.5	17.1	67.3	14.4	0.4	0.2	4.5	0.0
3	2.8	2.1	12.4	6.8	0.4	3.4	58.9	10.1	24.7	38.1	2.8	15.0	0.0	0.9	1.7	7.2
4	1.0	1.3	3.2	12.6	3.9	2.3	13.6	30.2	12.9	28.6	22.4	1.2	19.0	2.5	7.6	5.2
5	6.7	1.0	2.9	2.8	4.6	6.6	5.0	14.4	4.7	1.9	14.0	7.2	7.5	5.6	10.2	14.5
6	2.6	10.0	3.5	3.4	1.8	6.6	3.7	0.0	7.1	7.6	5.6	15.6	8.4	6.0	10.4	4.1
7	3.4	4.5	11.6	4.9	1.6	2.9	2.5	2.9	0.0	1.9	8.4	2.4	4.0	4.5	6.4	6.2
8	1.2	4.2	8.4	10.0	2.2	5.1	3.7	1.4	1.2	1.9	0.0	4.8	2.6	3.6	3.2	1.0
9	2.3	1.3	4.0	5.6	4.0	4.3	5.0	0.0	1.2	1.9	2.8	1.8	0.9	2.5	1.7	2.1
10	0.3	2.4	3.2	5.6	3.8	5.7	3.7	2.9	2.4	0.0	2.8	0.6	0.0	0.9	0.0	0.0
11	0.6	0.8	1.2	3.2	2.7	2.3	1.2	1.4	2.4	0.0	2.8	0.0	0.9	0.5	0.0	1.0
12	0.0	0.5	0.3	0.4	1.0	0.3	1.2	0.0	0.0	0.0	0.0	0.0	1.3	0.7	0.0	0.0
13	0.1	0.0	0.0	0.0	0.4	0.0	0.6	0.0	1.2	0.0	0.0	0.0	0.4	0.2	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	2.8	0.0	0.0	0.0	0.0	0.0
Total	25.3	54.2	61.9	58.3	31.1	73.3	101.7	139.4	118.8	99.0	131.8	64.7	45.4	28.6	45.6	41.4

Table 4-5.33. The estimated number of walleye caught in trap nets in management area 4-5. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	15,183	6,160	3,055	5,782	2,706	76	7,302	1,139	4,461	2,036	0	2,123	0	6,677	0	0
2	22,874	95,099	20,366	7,034	24,260	35,329	3,007	62,354	25,957	17,401	39,734	13,917	47,546	2,170	66,865	3,188
3	17,380	9,834	27,494	33,245	2,657	24,517	63,714	11,104	33,866	39,616	20,404	48,120	10,401	53,085	13,866	73,953
4	6,293	5,079	2,898	16,285	6,594	2,056	8,734	41,569	4,056	24,251	18,256	1,651	16,344	7,011	17,256	5,738
5	20,976	2,161	2,507	2,313	4,330	1,447	716	6,264	9,126	4,813	15,035	4,010	2,476	5,676	2,465	8,925
6	9,889	7,024	3,055	2,409	1,230	838	1,289	1,139	2,028	2,407	1,611	2,595	1,981	2,003	4,930	4,888
7	9,190	4,107	4,465	3,469	1,132	609	1,718	1,424	811	1,666	3,222	708	2,972	1,836	2,773	3,400
8	2,297	3,674	4,308	6,456	2,018	381	1,289	1,708	1,217	185	1,611	944	330	1,669	1,849	1,275
9	6,193	2,161	3,212	4,336	2,264	609	1,289	1,139	2,028	740	0	944	1,156	334	924	425
10	799	2,161	2,037	3,084	2,165	1,523	2,291	854	203	926	1,611	236	330	1,169	0	425
11	699	1,189	1,253	1,349	1,870	609	2,720	285	811	2,036	0	472	330	501	0	0
12	300	648	548	867	689	533	859	569	1,420	555	1,611	0	165	0	0	0
13	100	216	157	0	541	152	573	0	1,014	185	1,611	708	0	0	0	0
14	0	0	0	0	49	152	430	0	0	370	0	236	330	0	0	0
15	0	0	78	0	148	0	0	0	0	0	0	0	0	0	0	0
Total	112,174	139,514	75,433	86,629	52,653	68,830	95,929	129,548	86,997	97,188	104,705	76,663	84,361	82,131	110,929	102,217
Mean Age	4.11	3.02	4.07	4.41	4.17	3.05	3.77	3.21	3.53	3.67	3.73	3.36	3.12	3.47	2.96	3.59

Table 4-5.34. CPUE (number/net lift) for walleye caught in trap nets in management area 4-5. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	7.3	3.2	1.7	4.0	1.7	0.1	3.7	0.7	3.2	1.5	0.0	1.4	0.0	3.9	0.0	0.0
2	11.0	49.0	11.0	4.8	15.0	25.1	1.5	36.1	18.9	12.5	25.1	9.0	29.2	1.3	78.6	4.9
3	8.4	5.1	14.9	22.8	1.6	17.4	32.6	6.4	24.6	28.5	12.9	31.0	6.4	31.3	16.3	113.0
4	3.0	2.6	1.6	11.2	4.1	1.5	4.5	24.1	2.9	17.5	11.5	1.1	10.0	4.1	20.3	8.8
5	10.1	1.1	1.4	1.6	2.7	1.0	0.4	3.6	6.6	3.5	9.5	2.6	1.5	3.3	2.9	13.6
6	4.8	3.6	1.7	1.7	0.8	0.6	0.7	0.7	1.5	1.7	1.0	1.7	1.2	1.2	5.8	7.5
7	4.4	2.1	2.4	2.4	0.7	0.4	0.9	0.8	0.6	1.2	2.0	0.5	1.8	1.1	3.3	5.2
8	1.1	1.9	2.3	4.4	1.2	0.3	0.7	1.0	0.9	0.1	1.0	0.6	0.2	1.0	2.2	1.9
9	3.0	1.1	1.7	3.0	1.4	0.4	0.7	0.7	1.5	0.5	0.0	0.6	0.7	0.2	1.1	0.6
10	0.4	1.1	1.1	2.1	1.3	1.1	1.2	0.5	0.1	0.7	1.0	0.2	0.2	0.7	0.0	0.6
11	0.3	0.6	0.7	0.9	1.2	0.4	1.4	0.2	0.6	1.5	0.0	0.3	0.2	0.3	0.0	0.0
12	0.1	0.3	0.3	0.6	0.4	0.4	0.4	0.3	1.0	0.4	1.0	0.0	0.1	0.0	0.0	0.0
13	0.0	0.1	0.1	0.0	0.3	0.1	0.3	0.0	0.7	0.1	1.0	0.5	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.3	0.0	0.2	0.2	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	53.9	71.9	40.8	59.5	32.5	48.8	49.0	75.1	63.2	70.0	66.1	49.5	51.8	48.4	130.4	156.2

Table 5-7.13. The estimated number of walleye caught in gill nets in management area 5-7. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1								0			0	28	5	0	0	0
2								0			56	0	5	0	19	0
3								0			105	364	5	44	0	0
4	N	N	N	N	N	N	N	163	N	N	43	65	280	133	19	0
5	O	O	O	O	O	O	O	113	O	O	248	37	59	221	56	0
6								50			93	103	43	59	149	0
7								63			25	28	43	29	56	166
8	D	D	D	D	D	D	D	0	D	D	19	19	22	29	37	166
9	A	A	A	A	A	A	A	25	A	A	12	0	22	15	75	0
10	T	T	T	T	T	T	T	13	T	T	0	9	5	0	0	0
11	A	A	A	A	A	A	A	13	A	A	6	9	0	0	0	0
12								13			0	0	0	0	0	0
13								0			0	0	0	0	0	0
14								0			0	0	0	0	0	0
15								0			0	0	0	0	0	0
Total	0	0	0	0	0	0	0	452	0	0	608	663	490	530	410	332
Mean Age	--	--	--	--	--	--	--	5.75	--	--	4.78	4.11	4.96	5.08	6.45	7.50

Table 5-7.14. CPUE (number/km) for walleye caught in gill nets in management area 5-7. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1								0.0			0.0	0.3	0.1	0.0	0.0	0.0
2								0.0			0.9	0.0	0.1	0.0	0.2	0.0
3								0.0			1.7	3.4	0.1	0.3	0.0	0.0
4	N	N	N	N	N	N	N	4.2	N	N	0.7	0.6	4.0	0.8	0.2	0.0
5	O	O	O	O	O	O	O	2.9	O	O	4.0	0.4	0.9	1.3	0.5	0.0
6								1.3			1.5	1.0	0.6	0.3	1.4	0.0
7								1.6			0.4	0.3	0.6	0.2	0.5	2.8
8	D	D	D	D	D	D	D	0.0	D	D	0.3	0.2	0.3	0.2	0.4	2.8
9	A	A	A	A	A	A	A	0.6	A	A	0.2	0.0	0.3	0.1	0.7	0.0
10	T	T	T	T	T	T	T	0.3	T	T	0.0	0.1	0.1	0.0	0.0	0.0
11	A	A	A	A	A	A	A	0.3	A	A	0.1	0.1	0.0	0.0	0.0	0.0
12								0.3			0.0	0.0	0.0	0.0	0.0	0.0
13								0.0			0.0	0.0	0.0	0.0	0.0	0.0
14								0.0			0.0	0.0	0.0	0.0	0.0	0.0
15								0.0			0.0	0.0	0.0	0.0	0.0	0.0
Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.5	0.0	0.0	9.7	6.3	7.1	3.1	3.9	5.6

Table 6-1.9. The estimated number of walleye caught in gill nets in management area 6-1. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	423	659	114	516	1,703	758	137	239	1,509	0	0	1,766	0	66	0	0
2	1,606	2,417	2,982	516	334	654	208	239	2,304	2,584	2,567	3,643	643	3,900	2,109	205
3	704	4,028	85	295	67	26	38	40	318	6,459	0	994	1,636	1,147	3,447	3,523
4	761	3,442	1,250	331	234	209	33	159	0	1,292	2,567	221	964	164	231	1,471
5	901	1,172	2,642	1,620	534	1,595	93	120	636	0	0	0	672	426	103	684
6	1,155	586	824	2,320	668	1,072	247	339	159	0	0	221	614	131	0	308
7	1,155	146	170	295	1,569	445	296	1,036	159	646	0	0	468	131	0	0
8	225	0	312	221	467	602	400	817	79	0	0	110	205	66	0	34
9	394	0	199	110	300	52	531	438	318	646	0	110	117	0	0	0
10	225	73	57	37	267	26	186	359	159	0	0	0	117	0	0	0
11	141	293	28	0	334	26	153	100	159	0	0	0	29	0	0	0
12	169	0	28	37	234	26	170	100	0	0	0	0	29	0	0	0
13	113	73	28	0	200	0	93	80	0	0	0	0	0	0	0	0
14	56	0	28	0	33	0	77	40	0	0	0	0	0	0	0	0
15	113	0	0	0	0	0	49	0	0	0	0	0	0	0	0	0
Total	8,140	12,891	8,748	6,297	6,945	5,492	2,712	4,104	5,799	11,626	5,134	7,066	5,493	6,031	5,890	6,225
Mean Age	5.34	3.62	4.22	4.99	5.74	4.85	7.89	7.14	3.30	3.44	3.00	2.28	4.53	2.71	2.72	3.60

Table 6-1.10. CPUE (number/km) for walleye caught in gill nets in management area 6-1. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	1.2	1.9	0.3	1.9	6.7	3.5	1.0	1.4	12.8	0.0	0.0	12.2	0.0	0.4	0.0	0.0
2	4.5	6.9	7.1	1.9	1.3	3.0	1.5	1.4	19.5	11.9	24.1	25.3	3.3	24.3	32.4	4.1
3	2.0	11.5	0.2	1.1	0.3	0.1	0.3	0.2	2.7	29.8	0.0	6.9	8.5	7.1	53.0	69.5
4	2.1	9.9	3.0	1.2	0.9	1.0	0.2	0.9	0.0	6.0	24.1	1.5	5.0	1.0	3.6	29.0
5	2.5	3.4	6.3	6.0	2.1	7.3	0.7	0.7	5.4	0.0	0.0	0.0	3.5	2.6	1.6	13.5
6	3.2	1.7	1.9	8.6	2.6	4.9	1.8	2.0	1.3	0.0	0.0	1.5	3.2	0.8	0.0	6.1
7	3.2	0.4	0.4	1.1	6.1	2.0	2.2	6.1	1.3	3.0	0.0	0.0	2.4	0.8	0.0	0.0
8	0.6	0.0	0.7	0.8	1.8	2.7	3.0	4.8	0.7	0.0	0.0	0.8	1.1	0.4	0.0	0.7
9	1.1	0.0	0.5	0.4	1.2	0.2	3.9	2.6	2.7	3.0	0.0	0.8	0.6	0.0	0.0	0.0
10	0.6	0.2	0.1	0.1	1.0	0.1	1.4	2.1	1.3	0.0	0.0	0.0	0.6	0.0	0.0	0.0
11	0.4	0.8	0.1	0.0	1.3	0.1	1.1	0.6	1.3	0.0	0.0	0.0	0.2	0.0	0.0	0.0
12	0.5	0.0	0.1	0.1	0.9	0.1	1.3	0.6	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0
13	0.3	0.2	0.1	0.0	0.8	0.0	0.7	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	0.2	0.0	0.1	0.0	0.1	0.0	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.3	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	22.7	36.9	20.7	23.3	27.2	25.1	20.1	24.2	49.1	53.6	48.3	49.0	28.6	37.5	90.5	122.9

Table 4-5.13. The estimated number of yellow perch caught in gill nets in management area 4-5. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	7,578	21,798	681	30,620	16,088	23,006	3,406	72,665	74,946	8,430	1,062	8,500	0	311	0	0
2	102,968	23,947	96,445	5,741	146,208	70,691	62,445	34,987	112,419	250,588	23,375	3,643	1,750	55,593	112,457	0
3	930,276	455,301	182,225	673,255	73,369	350,947	296,328	561,139	238,289	423,777	744,798	106,853	40,258	136,963	61,087	258,927
4	369,079	360,127	252,347	88,798	181,390	36,182	214,961	215,305	394,907	96,557	180,621	577,979	177,662	45,344	12,495	432,360
5	213,513	23,333	71,710	47,078	11,138	20,705	23,464	21,531	40,355	78,165	26,562	157,852	123,400	21,119	4,165	5,700
6	8,023	18,421	6,127	15,310	1,414	837	12,110	1,346	961	16,859	14,875	6,071	9,627	9,938	2,083	0
7	8,469	3,684	6,354	3,445	1,061	209	2,649	1,346	0	7,663	5,312	1,214	0	2,795	1,388	814
8	4,012	2,763	1,589	3,062	1,061	209	1,514	0	0	4,598	4,250	0	0	311	0	0
9	4,012	4,605	1,135	1,148	530	209	378	0	1,922	3,832	7,437	0	875	621	0	0
10	4,012	1,535	454	383	177	0	378	0	1,922	1,533	4,250	0	0	0	0	0
11	0	1,228	454	0	0	209	0	1,346	0	766	0	0	0	0	0	0
12	0	0	0	0	0	0	378	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1,651,942	916,743	619,520	868,840	432,437	503,205	618,012	909,664	865,720	892,767	1,012,543	862,112	353,573	272,994	193,675	697,801
Mean Age	3.49	3.51	3.59	3.23	3.10	2.94	3.41	3.11	3.28	3.15	3.37	4.04	4.29	3.28	2.59	3.64

Table 4-5.14. CPUE (number/km) for yellow perch caught in gill nets in management area 4-5. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	1.8	6.9	0.4	12.4	10.5	18.7	2.0	33.6	32.3	3.4	0.5	3.6	0.0	0.3	0.0	0.0
2	24.1	7.6	58.7	2.3	95.4	57.3	36.5	16.2	48.4	102.1	11.4	1.5	1.7	61.3	324.8	0.0
3	217.9	144.5	110.9	272.7	47.9	284.7	173.2	259.5	102.6	172.7	364.2	45.1	40.0	151.1	176.4	277.9
4	86.5	114.3	153.5	36.0	118.4	29.4	125.7	99.6	170.1	39.3	88.3	243.8	176.5	50.0	36.1	464.1
5	50.0	7.4	43.6	19.1	7.3	16.8	13.7	10.0	17.4	31.8	13.0	66.6	122.6	23.3	12.0	6.1
6	1.9	5.8	3.7	6.2	0.9	0.7	7.1	0.6	0.4	6.9	7.3	2.6	9.6	11.0	6.0	0.0
7	2.0	1.2	3.9	1.4	0.7	0.2	1.5	0.6	0.0	3.1	2.6	0.5	0.0	3.1	4.0	0.9
8	0.9	0.9	1.0	1.2	0.7	0.2	0.9	0.0	0.0	1.9	2.1	0.0	0.0	0.3	0.0	0.0
9	0.9	1.5	0.7	0.5	0.3	0.2	0.2	0.0	0.8	1.6	3.6	0.0	0.9	0.7	0.0	0.0
10	0.9	0.5	0.3	0.2	0.1	0.0	0.2	0.0	0.8	0.6	2.1	0.0	0.0	0.0	0.0	0.0
11	0.0	0.4	0.3	0.0	0.0	0.2	0.0	0.6	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	387.0	290.9	376.9	351.9	282.2	408.2	361.3	420.7	372.9	363.7	495.1	363.6	351.4	301.1	559.4	749.0

Table 4-5.29. The estimated number of yellow perch caught in trap nets in management area 4-5. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	1,530	2,376	3,931	121	1,748	489	1,093	797	0	8,009	536	1,127	37	1,600	2,269	0
3	28,153	5,445	5,312	8,061	1,567	9,018	7,167	62,538	2,632	19,222	31,633	8,111	1,789	6,044	252	1,127
4	12,087	4,455	3,134	970	3,737	1,328	7,774	26,290	13,398	9,210	9,651	24,109	2,336	3,200	0	483
5	12,546	1,188	531	485	1,145	2,027	850	2,390	5,264	6,407	2,145	6,985	2,920	1,422	0	0
6	765	2,673	584	182	422	559	1,579	1,593	239	5,206	3,753	676	438	2,133	0	0
7	765	1,485	797	424	241	489	486	797	239	2,002	1,072	0	37	1,955	0	0
8	1,071	495	372	424	422	699	243	398	479	1,201	536	0	0	178	0	0
9	1,989	1,386	53	121	422	489	121	0	0	400	0	0	0	0	0	0
10	612	990	212	121	121	210	607	0	239	0	0	0	0	0	0	0
11	153	495	53	0	121	0	243	0	479	0	0	0	0	0	0	0
12	0	99	0	61	0	0	243	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	121	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	59,671	21,089	14,979	10,970	9,945	15,310	20,528	94,802	22,968	51,658	49,326	41,008	7,556	16,533	2,521	1,610
Mean Age	4.07	4.94	3.62	3.76	4.30	4.07	4.30	3.42	4.46	3.89	3.64	3.95	4.27	4.18	2.10	3.30

Table 4-5.30. CPUE (number/net lift) for yellow perch caught in trap nets in management area 4-5. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2	3.3	6.7	15.6	0.5	8.8	1.7	4.2	1.9	0.0	38.1	2.5	3.7	0.2	10.0	27.9	
3	60.6	15.3	21.1	33.5	7.9	30.5	27.2	153.0	11.7	91.5	147.8	26.8	9.8	37.9	3.1	
4	26.0	12.5	12.4	4.0	18.8	4.5	29.5	64.3	59.8	43.9	45.1	79.5	12.8	20.1	0.0	N
5	27.0	3.3	2.1	2.0	5.7	6.8	3.2	5.8	23.5	30.5	10.0	23.0	16.0	8.9	0.0	O
6	1.6	7.5	2.3	0.8	2.1	1.9	6.0	3.9	1.1	24.8	17.5	2.2	2.4	13.4	0.0	
7	1.6	4.2	3.2	1.8	1.2	1.7	1.8	1.9	1.1	9.5	5.0	0.0	0.2	12.3	0.0	
8	2.3	1.4	1.5	1.8	2.1	2.4	0.9	1.0	2.1	5.7	2.5	0.0	0.0	1.1	0.0	D
9	4.3	3.9	0.2	0.5	2.1	1.7	0.5	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.0	A
10	1.3	2.8	0.8	0.5	0.6	0.7	2.3	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	T
11	0.3	1.4	0.2	0.0	0.6	0.0	0.9	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	A
12	0.0	0.3	0.0	0.3	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
13	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total	128.5	59.2	59.4	45.5	49.9	51.7	78.0	232.0	102.4	245.9	230.5	135.3	41.3	103.7	31.1	0.0

Table 6-1.13. The estimated number of yellow perch caught in gill nets in management area 6-1. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0
2	273	0	110	3,819	639	2,778	0	1,158	2,239	8,403	561	79	400	0	124	39
3	18,818	19,687	4,065	21,960	8,090	17,698	5,604	17,894	7,578	21,487	36,786	6,790	2,120	215	629	624
4	185,728	66,887	38,237	18,523	35,022	6,666	19,053	13,894	22,045	9,786	6,505	10,959	5,160	2,148	1,086	1,189
5	58,909	98,670	23,404	22,342	16,712	9,047	4,483	6,737	15,500	7,233	1,682	2,805	2,120	8,891	1,420	663
6	14,727	23,244	29,227	19,096	12,348	2,778	3,213	1,474	3,100	4,361	2,579	236	240	4,639	1,141	487
7	4,091	5,455	4,615	6,683	5,216	2,619	1,494	526	689	2,234	1,122	0	20	1,031	116	136
8	2,455	1,423	879	1,910	1,597	873	971	105	0	213	785	0	0	129	8	39
9	818	949	330	191	0	0	374	211	0	213	449	0	0	0	0	0
10	273	0	0	191	0	79	0	0	172	0	112	0	0	0	0	19
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	286,091	216,316	100,866	94,714	79,624	42,538	35,193	41,999	51,323	53,931	50,580	20,869	10,081	17,052	4,524	3,197
Mean Age	4.34	4.70	4.96	4.64	4.68	4.07	4.44	3.82	4.25	3.75	3.57	3.82	3.97	5.26	4.71	4.51

Table 6-1.14. CPUE (number/km) for yellow perch caught in gill nets in management area 6-1. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0
2	0.2	0.0	0.2	5.7	1.2	7.7	0.0	4.1	8.8	42.5	2.5	0.5	3.8	0.0	3.1	2.3
3	15.3	18.1	7.2	32.5	14.9	49.1	24.4	63.4	29.8	108.7	161.1	40.4	20.2	1.7	15.6	37.0
4	150.9	61.6	68.2	27.4	64.7	18.5	83.0	49.2	86.6	49.5	28.5	65.2	49.1	16.8	27.0	70.4
5	47.9	90.8	41.7	33.1	30.9	25.1	19.5	23.9	60.9	36.6	7.4	16.7	20.2	69.5	35.3	39.3
6	12.0	21.4	52.1	28.3	22.8	7.7	14.0	5.2	12.2	22.1	11.3	1.4	2.3	36.3	28.3	28.9
7	3.3	5.0	8.2	9.9	9.6	7.3	6.5	1.9	2.7	11.3	4.9	0.0	0.2	8.1	2.9	8.1
8	2.0	1.3	1.6	2.8	2.9	2.4	4.2	0.4	0.0	1.1	3.4	0.0	0.0	1.0	0.2	2.3
9	0.7	0.9	0.6	0.3	0.0	0.0	1.6	0.7	0.0	1.1	2.0	0.0	0.0	0.0	0.0	0.0
10	0.2	0.0	0.0	0.3	0.0	0.2	0.0	0.0	0.7	0.0	0.5	0.0	0.0	0.0	0.0	1.2
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	232.5	199.2	179.9	140.3	147.0	118.0	153.3	148.8	201.7	272.9	221.5	124.2	95.9	133.3	112.4	189.4

Table 4-1.9. The estimated number of lake trout caught in gill nets in management area 4-1. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0	0	0	0	0	188	0	0	0	0	0	0			0	0
2	0	64	124	1,178	0	1,130	0	0	0	0	0	0			0	0
3	2,603	257	1,114	2,826	203	188	166	0	0	1,747	0	0			0	0
4	2,603	2,247	2,847	2,355	1,961	1,883	1,495	1,174	410	3,057	4,218	1,684	N	N	0	772
5	0	578	867	1,649	2,028	2,824	1,661	1,174	1,368	873	402	2,526	O	O	0	2,315
6	0	0	371	236	473	377	498	2,347	684	873	603	1,684			0	2,315
7	0	64	0	0	68	0	166	0	410	0	402	0			8,149	2,315
8	0	0	0	0	0	0	0	0	410	0	402	842	D	D	0	0
9	0	0	0	0	0	0	0	0	0	0	201	0	A	A	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	T	T	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	A	A	0	0
12	0	0	0	0	0	0	0	0	274	0	0	0			0	0
13	0	0	0	0	0	0	0	0	0	0	0	0			0	0
14	0	0	0	0	0	0	0	0	0	0	0	0			0	0
15	0	0	0	0	0	0	0	0	0	0	0	0			0	0
Total	5,206	3,210	5,323	8,243	4,733	6,590	3,986	4,694	3,557	6,550	6,227	6,736	0	0	8,149	7,718
Mean Age	3.50	4.12	4.05	3.63	4.63	4.09	4.75	5.25	6.19	4.13	4.87	5.38	--	--	7.00	5.80

Table 4-1.10. CPUE (number/km) for lake trout caught in gill nets in management area 4-1. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0.0		0.0							0.0						
2	0.0		0.3							0.0						
3	37.0		2.7							9.4						
4	37.0	N	7.0	N	N	N	N	N	N	16.5	N	N	N	N	N	N
5	0.0	O	2.1	O	O	O	O	O	O	4.7	O	O	O	O	O	O
6	0.0		0.9							4.7						
7	0.0		0.0							0.0						
8	0.0	D	0.0	D	D	D	D	D	D	0.0	D	D	D	D	D	D
9	0.0	A	0.0	A	A	A	A	A	A	0.0	A	A	A	A	A	A
10	0.0	T	0.0	T	T	T	T	T	T	0.0	T	T	T	T	T	T
11	0.0	A	0.0	A	A	A	A	A	A	0.0	A	A	A	A	A	A
12	0.0		0.0							0.0						
13	0.0		0.0							0.0						
14	0.0		0.0							0.0						
15	0.0		0.0							0.0						
Total	74.0	0.0	13.1	0.0	0.0	0.0	0.0	0.0	0.0	35.4	0.0	0.0	0.0	0.0	0.0	0.0

Table 4-2.9. The estimated number of lake trout caught in gill nets in management area 4-2. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
2	0	0	0	55	142	84	93	0	0	0	155		0	0	0	0
3	222	393	323	799	283	0	466	0	180	96	311		1,186	0	1,530	516
4	578	589	462	854	793	840	746	0	299	384	932	N	9,489	0	0	0
5	133	393	462	386	311	924	186	578	419	672	932	O	1,186	948	1,530	3,611
6	133	65	138	248	311	168	93	578	299	288	311		0	948	5,355	3,095
7	0	0	0	28	170	0	0	0	180	288	466		0	2,845	2,295	2,063
8	0	0	0	28	28	84	93	0	0	0	621	D	0	948	0	1,032
9	0	0	0	28	0	0	0	0	60	0	0	A	0	948	0	516
10	0	0	0	0	0	0	0	0	60	0	155	T	0	0	0	0
11	0	0	0	0	28	0	0	0	0	96	0	A	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
Total	1,068	1,440	1,385	2,425	2,067	2,100	1,678	1,157	1,497	1,824	3,882	0	11,862	6,638	10,711	10,832
Mean Age	4.17	4.09	4.30	4.13	4.58	4.68	4.06	5.50	5.36	5.47	5.48	--	4.00	7.00	5.64	6.05

Table 4-2.10. CPUE (number/km) for lake trout caught in gill nets in management area 4-2. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0.0		0.0													
2	0.0		0.0													
3	2.5		2.4													
4	6.4	N	3.4	N	N	N	N	N	N	N	N	N	N	N	N	N
5	1.5	O	3.4	O	O	O	O	O	O	O	O	O	O	O	O	O
6	1.5		1.0													
7	0.0		0.0													
8	0.0	D	0.0	D	D	D	D	D	D	D	D	D	D	D	D	D
9	0.0	A	0.0	A	A	A	A	A	A	A	A	A	A	A	A	A
10	0.0	T	0.0	T	T	T	T	T	T	T	T	T	T	T	T	T
11	0.0	A	0.0	A	A	A	A	A	A	A	A	A	A	A	A	A
12	0.0		0.0													
13	0.0		0.0													
14	0.0		0.0													
15	0.0		0.0													
Total	11.8	0.0	10.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 4-3.9. The estimated number of lake trout caught in gill nets in management area 4-3. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	0	0	774	93	313	229	0	49	73	0	232	0	0	0	0	
3	0	73	3,869	935	870	0	106	49	73	1,091	811	739	106	0	1,203	
4	675	110	1,547	935	1,670	1,143	1,062	485	146	2,546	2,896	3,449	3,496	1,126	0	N
5	300	588	774	935	557	1,600	1,062	534	364	1,819	927	1,478	2,542	5,631	0	O
6	225	257	774	467	731	686	1,062	388	218	2,182	463	246	530	2,253	3,610	
7	0	184	0	0	278	457	212	194	291	727	463	1,971	106	1,126	3,610	
8	0	0	387	0	104	229	212	97	291	727	232	493	212	2,253	0	D
9	0	0	0	0	0	0	0	0	0	1,091	0	493	0	0	0	A
10	0	0	0	0	0	0	0	0	0	0	0	493	0	0	0	T
11	0	0	0	0	0	0	0	0	0	0	116	0	318	0	0	A
12	0	0	0	0	0	0	0	0	0	364	0	0	0	0	0	
13	0	0	0	0	0	0	0	0	73	0	0	0	0	0	0	
14	0	0	0	0	0	0	0	0	73	0	0	0	0	0	0	
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	1,201	1,213	8,124	3,364	4,524	4,342	3,716	1,795	1,601	10,548	6,139	9,362	7,309	12,389	8,424	0
Mean Age	4.63	5.30	3.81	4.22	4.39	5.11	5.23	5.19	6.50	5.76	4.60	5.55	4.94	5.82	6.00	--

Table 4-3.10. CPUE (number/km) for lake trout caught in gill nets in management area 4-3. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0.0	0.0	0.0	0.0	0.0											
2	0.0	0.0	3.5	1.1	13.5											
3	0.0	0.2	17.3	11.1	37.5											
4	3.4	0.3	6.9	11.1	72.1	N	N	N	N	N	N	N	N	N	N	N
5	1.5	1.7	3.5	11.1	24.0	O	O	O	O	O	O	O	O	O	O	O
6	1.1	0.7	3.5	5.5	31.5											
7	0.0	0.5	0.0	0.0	12.0											
8	0.0	0.0	1.7	0.0	4.5	D	D	D	D	D	D	D	D	D	D	D
9	0.0	0.0	0.0	0.0	0.0	A	A	A	A	A	A	A	A	A	A	A
10	0.0	0.0	0.0	0.0	0.0	T	T	T	T	T	T	T	T	T	T	T
11	0.0	0.0	0.0	0.0	0.0	A	A	A	A	A	A	A	A	A	A	A
12	0.0	0.0	0.0	0.0	0.0											
13	0.0	0.0	0.0	0.0	0.0											
14	0.0	0.0	0.0	0.0	0.0											
15	0.0	0.0	0.0	0.0	0.0											
Total	6.1	3.5	36.4	39.9	195.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 4-4.9. The estimated number of lake trout caught in gill nets in management area 4-4. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0	0	0	0	0	0	71		0							
2	0	282	0	472	173	0	0		0							
3	1,171	282	167	1,416	471	2,122	465		387							
4	781	705	1,000	682	974	2,122	2,180	N	1,546	N	N	N	N	N	N	N
5	781	0	444	1,101	2,498	2,122	3,216	O	773	O	O	O	O	O	O	O
6	0	141	167	157	503	0	1,572		3,479							
7	0	141	222	52	173	0	179		193							
8	0	0	56	105	79	0	71	D	193	D	D	D	D	D	D	D
9	0	0	0	0	0	0	0	A	0	A	A	A	A	A	A	A
10	0	0	0	0	31	0	0	T	0	T	T	T	T	T	T	T
11	0	0	0	0	0	0	0	A	193	A	A	A	A	A	A	A
12	0	0	0	0	0	0	0		0							
13	0	0	0	0	0	0	0		193							
14	0	0	0	0	0	0	0		0							
15	0	0	0	0	0	0	0		0							
Total	2,733	1,552	2,055	3,986	4,902	6,365	7,754	0	6,959	0	0	0	0	0	0	0
Mean Age	3.86	3.91	4.73	3.91	4.76	4.00	4.84	--	5.69	--	--	--	--	--	--	--

Table 4-4.10. CPUE (number/km) for lake trout caught in gill nets in management area 4-4. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0.0															
2	0.0															
3	162.5															
4	108.3	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
5	108.3	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
6	0.0															
7	0.0															
8	0.0	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
9	0.0	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
10	0.0	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
11	0.0	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
12	0.0															
13	0.0															
14	0.0															
15	0.0															
Total	379.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 4-5.9. The estimated number of lake trout caught in gill nets in management area 4-5. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0	0	0	332	0	296	91	187	93	0	0	0	0	0	0	0
2	3,481	740	2,168	886	3,566	444	1,269	560	541	931	517	0	0	0	0	0
3	3,978	2,220	1,183	2,327	6,436	7,847	1,677	2,407	1,871	432	2,258	3,624	1,643	0	0	0
4	2,238	1,480	986	1,884	9,179	4,441	8,315	2,884	3,139	266	3,292	5,200	18,073	3,961	0	0
5	3,729	1,480	197	388	7,955	15,101	11,962	7,906	3,989	12,869	2,211	12,685	14,787	25,083	18,884	4,439
6	746	2,466	986	794	1,350	1,332	4,667	3,631	11,565	6,484	9,313	4,491	7,393	29,484	23,883	22,195
7	0	1,480	1,183	111	675	296	974	622	2,829	4,722	3,528	4,806	0	9,241	1,111	13,317
8	0	0	0	0	148	148	68	311	340	931	2,070	945	5,750	4,841	2,777	0
9	0	0	0	18	211	296	23	41	216	67	423	2,127	0	3,961	1,111	0
10	0	0	0	18	317	592	45	83	232	100	47	315	0	880	0	0
11	0	0	0	0	42	444	0	21	247	0	235	0	0	440	1,111	2,220
12	0	0	0	0	0	0	45	21	62	0	94	0	0	440	0	0
13	0	0	0	0	0	0	0	21	62	33	0	0	0	0	555	0
14	0	0	0	0	0	0	0	0	15	100	47	158	0	0	0	1,110
15	0	0	0	0	0	0	0	0	0	67	94	0	0	0	0	0
Total	14,171	9,865	6,702	6,759	29,879	31,238	29,135	18,695	25,201	27,001	24,129	34,351	47,647	78,330	49,432	43,280
Mean Age	3.60	4.73	4.03	3.62	4.10	4.57	4.71	4.82	5.55	5.64	5.77	5.47	5.07	6.08	6.01	6.67

Table 4-5.10. CPUE (number/km) for lake trout caught in gill nets in management area 4-5. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1							1.5						0.0	0.0		
2							20.7						0.0	0.0		
3							27.4						3.8	0.0		
4	N	N	N	N	N	N	135.8	N	N	N	N	N	41.7	0.6	N	N
5	O	O	O	O	O	O	195.4	O	O	O	O	O	34.1	3.9	O	O
6							76.3						17.1	4.6		
7							15.9						0.0	1.4		
8	D	D	D	D	D	D	1.1	D	D	D	D	D	13.3	0.8	D	D
9	A	A	A	A	A	A	0.4	A	A	A	A	A	0.0	0.6	A	A
10	T	T	T	T	T	T	0.7	T	T	T	T	T	0.0	0.1	T	T
11	A	A	A	A	A	A	0.0	A	A	A	A	A	0.0	0.1	A	A
12							0.7						0.0	0.1		
13							0.0						0.0	0.0		
14							0.0						0.0	0.0		
15							0.0						0.0	0.0		
Total	0.0	0.0	0.0	0.0	0.0	0.0	476.0	0.0	0.0	0.0	0.0	0.0	109.9	12.2	0.0	0.0

Table 4-5.25. The estimated number of lake trout caught in trap nets in management area 4-5. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0	0	0	0	0		0	0	0	0	0	0	0	0	0	
2	0	0	0	0	0		0	0	0	0	0	0	0	0	0	
3	0	0	0	0	0		67	39	0	0	499	0	0	0	0	
4	0	0	26	66	29	N	316	272	1,177	458	0	0	0	0	0	N
5	255	135	77	19	123	O	516	834	1,912	5,500	0	0	0	0	3,899	O
6	51	90	0	142	65		416	291	1,235	5,042	5,485	649	0	15,593	1,949	
7	0	0	26	0	29		50	58	471	3,667	3,989	2,597	0	0	0	
8	0	0	0	9	0	D	0	0	147	0	1,496	0	12,552	0	0	D
9	0	0	0	0	0	A	0	0	0	0	0	4,545	0	0	0	A
10	0	0	0	9	15	T	0	0	29	0	0	1,948	0	0	0	T
11	0	0	0	0	7	A	0	0	0	0	0	0	0	0	0	A
12	0	0	0	0	0		0	0	0	0	0	0	0	0	0	
13	0	0	0	0	0		0	0	0	0	0	0	0	0	0	
14	0	0	0	0	0		0	0	0	0	0	0	0	0	0	
15	0	0	0	0	0		0	0	0	0	0	0	0	0	0	
Total	306	225	129	246	269	0	1,366	1,493	4,971	14,667	11,468	9,738	12,552	15,593	5,848	0
Mean Age	5.17	5.40	5.20	5.62	5.78	--	5.05	5.04	5.32	5.81	6.48	8.47	8.00	6.00	5.33	--

Table 4-5.26. CPUE (number/net lift) for lake trout caught in trap nets in management area 4-5. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1																
2																
3																
4	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
5	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
6																
7																
8	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
9	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
10	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
11	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
12																
13																
14																
15																
Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 4-7.9. The estimated number of lake trout caught in gill nets in management area 4-7. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0	0	0	0	0	0	0								0	
2	0	0	18	21	0	0	0								0	
3	0	0	0	138	38	0	10								0	
4	86	52	90	74	126	1	46	N	N	N	N	N	N	N	0	N
5	57	26	18	95	76	3	36	O	O	O	O	O	O	O	0	O
6	57	26	18	21	63	0	46								0	
7	0	0	18	0	0	0	15								0	
8	0	0	18	0	13	0	0	D	D	D	D	D	D	D	0	D
9	0	0	0	0	0	0	0	A	A	A	A	A	A	A	772	A
10	0	0	0	0	0	0	0	T	T	T	T	T	T	T	0	T
11	0	0	0	0	0	0	0	A	A	A	A	A	A	A	0	A
12	0	0	0	0	0	0	0								0	
13	0	0	0	0	0	0	0								0	
14	0	0	0	0	0	0	0								0	
15	0	0	0	0	0	0	0								0	
Total	200	105	181	350	316	4	152	0	0	0	0	0	0	0	772	0
Mean Age	4.86	4.75	4.80	3.88	4.68	4.67	5.07	--	--	--	--	--	--	--	9.00	--

Table 4-7.10. CPUE (number/km) for lake trout caught in gill nets in management area 4-7. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1																
2																
3																
4	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
5	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
6																
7																
8	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
9	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
10	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
11	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
12																
13																
14																
15																
Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 5-1.9. The estimated number of lake trout caught in gill nets in management area 5-1. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1							110	0	0	0	0	0	0	0	0	0
2							0	0	0	0	1,414	0	0	0	0	0
3							55	203	0	0	1,225	0	0	0	0	139
4	N	N	N	N	N	N	937	338	1,645	0	2,639	1,627	2,226	988	197	417
5	O	O	O	O	O	O	386	1,148	164	0	471	0	1,336	2,964	2,556	209
6							220	338	493	0	2,828	0	0	988	786	1,670
7							0	0	164	2,777	94	651	0	0	197	904
8	D	D	D	D	D	D	165	0	0	0	94	0	0	0	197	278
9	A	A	A	A	A	A	0	0	0	0	94	163	0	0	197	139
10	T	T	T	T	T	T	0	0	0	0	94	163	0	0	197	0
11	A	A	A	A	A	A	0	0	0	0	0	0	0	0	0	0
12							0	0	0	0	94	0	0	0	0	0
13							0	0	0	0	0	0	0	0	0	0
14							0	0	0	0	0	0	0	0	0	0
15							0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1,874	2,027	2,467	2,777	9,049	2,604	3,562	4,939	4,325	3,757
Mean Age	--	--	--	--	--	--	4.59	4.80	4.67	7.00	4.50	5.44	4.38	5.00	5.77	6.11

Table 5-1.10. CPUE (number/km) for lake trout caught in gill nets in management area 5-1. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1																
2																
3																
4	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
5	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
6																
7																
8	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
9	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
10	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
11	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
12																
13																
14																
15																
Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 5-2.9. The estimated number of lake trout caught in gill nets in management area 5-2. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1							0		0		0		0	0	0	
2							0		244		10,259		0	53	0	
3							0		215		0		299	53	0	
4	N	N	N	N	N	N	2,353	N	1,824	N	0	N	1,376	584	0	N
5	O	O	O	O	O	O	0	O	1,680	O	0	O	1,616	425	1,023	O
6							0		72		0		0	1,327	64	
7							0		172		0		0	690	639	
8	D	D	D	D	D	D	0	D	919	D	0	D	0	265	384	D
9	A	A	A	A	A	A	0	A	0	A	0	A	0	106	128	A
10	T	T	T	T	T	T	0	T	86	T	0	T	0	53	0	T
11	A	A	A	A	A	A	0	A	14	A	0	A	0	0	0	A
12							0		29		0		0	0	0	
13							0		0		0		0	53	0	
14							0		0		0		0	0	0	
15							0		0		0		0	0	0	
Total	0	0	0	0	0	0	2,353	0	5,255	0	10,259	0	3,291	3,610	2,237	0
Mean Age	--	--	--	--	--	--	4.00	--	5.17	--	2.00	--	4.40	6.04	6.34	--

Table 5-2.10. CPUE (number/km) for lake trout caught in gill nets in management area 5-2. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1																
2																
3																
4	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
5	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
6																
7																
8	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
9	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
10	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
11	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
12																
13																
14																
15																
Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 5-6.9. The estimated number of lake trout caught in gill nets in management area 5-6. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1				0	0	0	0	0	0		0	0		0		0
2				70	592	0	0	3,648	0		0	0		0		0
3				234	1,185	26,627	262	1,216	0		0	6,127		0		0
4	N	N	N	0	4,738	0	131	0	0	N	0	0	N	0	N	0
5	O	O	O	0	592	0	2,746	0	3,378	O	1,482	0	O	4,466	O	0
6				0	0	0	5,230	0	0		0	0		0		0
7				0	0	0	131	0	0		0	0		0		2,895
8	D	D	D	0	0	0	262	0	0	D	0	0	D	0	D	0
9	A	A	A	0	0	0	0	0	0	A	0	0	A	0	A	0
10	T	T	T	0	0	0	0	0	0	T	0	0	T	0	T	0
11	A	A	A	0	0	0	0	0	0	A	0	0	A	0	A	0
12				0	0	0	0	0	0		0	0		0		0
13				0	0	0	0	0	0		0	0		0		0
14				0	0	0	0	0	0		0	0		0		0
15				0	0	0	0	0	0		0	0		0		0
Total	0	0	0	305	7,107	26,627	8,760	4,864	3,378	0	1,482	6,127	0	4,466	0	2,895
Mean Age	--	--	--	2.77	3.75	3.00	5.64	2.25	5.00	--	5.00	3.00	--	5.00	--	7.00

Table 5-6.10. CPUE (number/km) for lake trout caught in gill nets in management area 5-6. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1																
2																
3																
4	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
5	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
6																
7																
8	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
9	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
10	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
11	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
12																
13																
14																
15																
Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 5-7.9. The estimated number of lake trout caught in gill nets in management area 5-7. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1								0	0	0	0	0	0	0	0	0
2								0	0	0	614	0	0	0	0	0
3								908	27	0	0	1,363	31	22	47	0
4	N	N	N	N	N	N	N	971	1,460	0	0	240	10,862	284	47	0
5	O	O	O	O	O	O	O	532	730	0	0	13	310	7,473	3,870	249
6								251	81	0	154	151	0	153	9,511	1,841
7								0	189	1,553	0	0	0	0	466	2,389
8	D	D	D	D	D	D	D	16	162	0	307	13	0	44	93	149
9	A	A	A	A	A	A	A	16	27	0	0	25	0	22	280	100
10	T	T	T	T	T	T	T	0	0	0	0	13	0	22	0	0
11	A	A	A	A	A	A	A	0	0	0	0	0	31	0	0	50
12								0	27	0	0	0	0	0	0	0
13								0	0	0	0	0	0	0	0	0
14								0	0	0	0	0	0	0	0	0
15								0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	2,693	2,704	1,553	1,075	1,817	11,234	8,020	14,312	4,777
Mean Age	--	--	--	--	--	--	--	4.10	4.90	7.00	4.29	3.56	4.04	5.02	5.82	6.63

Table 5-7.10. CPUE (number/km) for lake trout caught in gill nets in management area 5-7. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1																
2																
3																
4	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
5	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
6																
7																
8	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
9	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
10	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
11	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
12																
13																
14																
15																
Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 5-8.9. The estimated number of lake trout caught in gill nets in management area 5-8. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0	0	0	104	0	1,607	42	92	0	0	0	0	0	282		
2	2,415	0	0	622	482	0	547	369	403	66	0	0	0	282		
3	8,451	1,842	0	2,385	1,446	16,067	3,030	1,474	699	943	2,676	367	400	375		
4	1,207	460	8,653	830	11,324	0	1,010	5,252	4,514	943	669	3,563	3,531	7,509	N	N
5	0	921	0	311	4,578	0	2,861	645	2,122	1,997	0	105	3,731	8,166	O	O
6	0	0	0	104	0	0	7,616	2,488	430	241	2,007	681	200	3,004		
7	0	0	0	0	1,446	3,213	842	1,106	376	176	0	52	67	282		
8	0	0	0	0	723	1,607	0	92	349	22	334	0	67	282	D	D
9	0	0	0	0	241	3,213	0	0	54	0	0	0	0	94	A	A
10	0	0	0	0	0	0	0	0	54	0	0	0	0	94	T	T
11	0	0	0	0	0	0	0	0	0	22	0	0	0	0	A	A
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
13	0	0	0	0	0	0	0	0	0	0	0	0	0	94		
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Total	12,073	3,223	8,653	4,355	20,239	25,708	15,948	11,518	9,000	4,410	5,686	4,768	7,995	20,463	0	0
Mean Age	2.90	3.71	4.00	3.21	4.52	4.44	5.03	4.59	4.51	4.49	4.47	4.26	4.53	4.79	--	--

Table 5-8.10. CPUE (number/km) for lake trout caught in gill nets in management area 5-8. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0.0	0.0	0.0													
2	100.7	0.0	0.0													
3	352.5	67.0	0.0													
4	50.4	16.7	278.0	N	N	N	N	N	N	N	N	N	N	N	N	N
5	0.0	33.5	0.0	O	O	O	O	O	O	O	O	O	O	O	O	O
6	0.0	0.0	0.0													
7	0.0	0.0	0.0													
8	0.0	0.0	0.0	D	D	D	D	D	D	D	D	D	D	D	D	D
9	0.0	0.0	0.0	A	A	A	A	A	A	A	A	A	A	A	A	A
10	0.0	0.0	0.0	T	T	T	T	T	T	T	T	T	T	T	T	T
11	0.0	0.0	0.0	A	A	A	A	A	A	A	A	A	A	A	A	A
12	0.0	0.0	0.0													
13	0.0	0.0	0.0													
14	0.0	0.0	0.0													
15	0.0	0.0	0.0													
Total	503.5	117.2	278.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 5-9.9. The estimated number of lake trout caught in gill nets in management area 5-9. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1					0	0	0	0	0	0	0	0	0	0	0	0
2					45	0	23	12	46	0	0	0	0	42	0	0
3					89	0	0	270	69	0	137	138	41	84	0	0
4	N	N	N	N	1,873	0	46	761	485	439	228	600	2,477	1,702	171	84
5	O	O	O	O	669	0	184	111	450	659	319	92	344	2,122	1,709	669
6					45	0	620	135	46	0	410	261	0	189	1,025	669
7					89	2,047	253	184	92	220	91	31	14	105	49	1,004
8	D	D	D	D	0	0	23	37	127	0	46	0	0	0	0	0
9	A	A	A	A	0	0	0	0	12	0	0	0	0	0	24	0
10	T	T	T	T	0	0	0	0	23	0	0	31	0	0	0	0
11	A	A	A	A	0	0	0	0	0	0	0	15	41	0	0	0
12					0	0	0	0	12	0	0	0	0	0	0	0
13					0	0	0	0	0	0	0	0	0	0	0	0
14					0	0	0	0	0	0	0	0	0	0	0	0
15					0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	2,809	2,047	1,149	1,510	1,363	1,318	1,229	1,169	2,917	4,244	2,978	2,426
Mean Age	--	--	--	--	4.30	7.00	5.94	4.52	5.07	5.00	5.19	4.74	4.22	4.62	5.35	6.07

Table 5-9.10. CPUE (number/km) for lake trout caught in gill nets in management area 5-9. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1																
2																
3																
4	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
5	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
6																
7																
8	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
9	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
10	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
11	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
12																
13																
14																
15																
Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 6-1.5. The estimated number of lake trout caught in gill nets in management area 6-1. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0	0	0	0	0	0	21	0	73	0	0	0	0	0	0	0
2	0	0	0	1,002	29	0	145	102	293	0	158	299	0	482	0	283
3	0	478	414	2,096	2,654	0	869	614	733	999	2,368	7,486	1,992	1,930	306	991
4	1,712	3,820	1,655	2,461	5,965	5,238	1,573	4,453	1,795	2,247	5,367	9,282	6,259	4,824	612	2,125
5	0	1,751	1,138	1,321	1,341	4,490	1,946	614	1,685	1,747	894	599	5,690	3,377	2,753	708
6	1,427	0	931	182	571	0	145	665	256	999	1,052	299	0	1,447	2,447	991
7	0	159	0	46	86	0	83	0	147	0	368	299	0	482	306	1,558
8	0	0	103	0	0	0	21	0	0	0	0	0	0	0	1,529	142
9	0	0	0	46	57	0	21	0	0	0	105	0	0	482	0	991
10	0	0	0	0	29	0	0	0	37	0	0	599	569	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	569	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	3,139	6,208	4,240	7,154	10,732	9,728	4,823	6,449	5,019	5,991	10,313	18,864	15,079	13,026	7,952	7,790
Mean Age	4.91	4.28	4.71	3.71	4.05	4.46	4.30	4.17	4.26	4.46	4.19	3.87	4.74	4.56	5.81	5.45

Table 6-1.6. CPUE (number/km) for lake trout caught in gill nets in management area 6-1. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	0.0	0.0	0.0			0.0										
2	0.0	0.0	0.0			0.0										
3	0.0	0.5	0.2			0.0										
4	4.4	4.2	1.0	N	N	24.1	N	N	N	N	N	N	N	N	N	N
5	0.0	1.9	0.7	O	O	20.7	O	O	O	O	O	O	O	O	O	O
6	3.7	0.0	0.6			0.0										
7	0.0	0.2	0.0			0.0										
8	0.0	0.0	0.1	D	D	0.0	D	D	D	D	D	D	D	D	D	D
9	0.0	0.0	0.0	A	A	0.0	A	A	A	A	A	A	A	A	A	A
10	0.0	0.0	0.0	T	T	0.0	T	T	T	T	T	T	T	T	T	T
11	0.0	0.0	0.0	A	A	0.0	A	A	A	A	A	A	A	A	A	A
12	0.0	0.0	0.0			0.0										
13	0.0	0.0	0.0			0.0										
14	0.0	0.0	0.0			0.0										
15	0.0	0.0	0.0			0.0										
Total	8.1	6.9	2.6	0.0	0.0	44.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 6-1.17. The estimated number of lake herring caught in gill nets in management area 6-1. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1			0						0			0	0	0		0
2			0						0			0	0	0		814
3			0						0			0	1,213	0		0
4	N	N	0	N	N	N	N	N	625	N	N	1,835	809	0	N	814
5	O	O	0	O	O	O	O	O	1,875	O	O	917	1,618	0	O	814
6			0						2,499			3,211	5,257	0		1,629
7			0						1,250			4,128	2,831	0		3,258
8	D	D	0	D	D	D	D	D	1,250	D	D	2,752	2,022	0	D	4,072
9	A	A	4,962	A	A	A	A	A	0	A	A	1,835	809	0	A	2,443
10	T	T	4,962	T	T	T	T	T	0	T	T	0	0	0	T	814
11	A	A	0	A	A	A	A	A	0	A	A	0	0	12,729	A	814
12			0						0			0	0	0		4,072
13			0						0			0	0	0		0
14			0						0			0	0	0		0
15			0						0			0	0	0		0
Total	0	0	9,924	0	0	0	0	0	7,498	0	0	14,677	14,559	12,729	0	19,546
Mean Age	--	--	9.50	--	--	--	--	--	6.08	--	--	6.72	6.17	11.00	--	8.29

Table 6-1.18. CPUE (number/km) for lake herring caught in gill nets in management area 6-1. Catch includes fish that were harvested, released, or discarded.

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1			0.0						0.0			0.0	0.0			
2			0.0						0.0			0.0	0.0			
3			0.0						0.0			0.0	16.9			
4	N	N	0.0	N	N	N	N	N	11.1	N	N	14.4	11.2	N	N	N
5	O	O	0.0	O	O	O	O	O	33.4	O	O	7.2	22.5	O	O	O
6			0.0						44.5			25.3	73.1			
7			0.0						22.3			32.5	39.3			
8	D	D	0.0	D	D	D	D	D	22.3	D	D	21.6	28.1	D	D	D
9	A	A	29.4	A	A	A	A	A	0.0	A	A	14.4	11.2	A	A	A
10	T	T	29.4	T	T	T	T	T	0.0	T	T	0.0	0.0	T	T	T
11	A	A	0.0	A	A	A	A	A	0.0	A	A	0.0	0.0	A	A	A
12			0.0						0.0			0.0	0.0			
13			0.0						0.0			0.0	0.0			
14			0.0						0.0			0.0	0.0			
15			0.0						0.0			0.0	0.0			
Total	0.0	0.0	58.8	0.0	0.0	0.0	0.0	0.0	133.6	0.0	0.0	115.5	202.3	0.0	0.0	0.0